THE AMERICAN GAS LIGHT JOURNAL

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE.

VOLUME XCII., No. 26. Whole No. 1,829. | NEW YORK, MONDAY, JUNE 27, 1910. | $3 PER ANNUM, IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. C. H. WADELTON, Manager. THOMAS J. CUNNINGHAM and ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

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BRIEFLY TOLD.

OBITUARY NOTE, THOMAS OSBORN HORTON.—Last week we conveyed to our readers the sorrowful news that Mr. Thomas O. Horton, President and Manager of the New York and Richmond Gas Company, Richmond Borough, Stapleton, New York city, had responded to the final roll call, June 13, in Pasadena, Cal., in which place he was sojourning in the hope that the climatic influences of that garden spot would restore him from the ravages of an illness that beset him a year or more ago. Originally his illness was in the form of a nervous breakdown—he had worked at high tension on the restoring of the gas supply of Staten Island, which was in pretty bad condition when it was taken over some 6 years ago by Mr. F. H. Shelton and associates. Of a finely nervous disposition, Mr. Horton neglected his health for what he termed his duty, and nature resented the choice. Nor would the latter be denied, for something over a year ago the symptoms of lung trouble were manifest. The progress of the disease was slow but nevertheless certain, and, in October, 1909, he left the East, on an extended Southern trip, finally locating in Pasadena, toward the close of last year. Despite the best that medical skill could attain, reinforced by all the loving care that could be bestowed or given by those nearest and dearest to him, he slowly faded away.

Thomas Osborn Horton was born within sight of that most beautiful of all the many waterways that dot the surface of Long Island—Peconic Bay—in October, 1874. His first education was obtained in Peconic Public School, later supplemented by a special preparation in Siglar's Preparatory School, Newburgh, N.Y., for the course at Yale. He completed the severe Yale numbers without delay, and graduated well up in the Class of 1895. His first business engagement was with a firm of builders engaged in the construction of large structures of the steel and stone type. This he relinquished to take service with the erectors of the manufacturing and distributing sections of the plant of the East River Gas Company in this and Long Island Cities, engaging service with these as purchasing agent. About this time he formed the acquaintance of Mr. F. H. Shelton, who was then becoming quite prominent in the gas world, from a construction point of view as well as from the point of a proprietor. Under his direction he was concerned in the reconstruction of the Camden (N. J.) plant, and later on with the initial venture (Jenkintown and Cheltenham, Pa.), which finally resulted in the formation of the Philadelphia and Suburban Gas Company. Early in 1899 he became affiliated with the Niagara Falls (N. Y.) Company as its Manager. He accomplished great work in both the construction and business direction thereof, but he resigned from that service to become Manager of the New York and Richmond Gas Company, which corporation was formed by Mr. F. H. Shelton and associates for the unification of the gas interests of Staten Island, which were at the time in deplorable shape. In July, 1901, the transaction was completed from the financiers' point of view, but then came the arduous part of the transaction. The greatest part of the bodily and mental stress of this resuscitation fell upon the shoulders of Mr. Horton, but he never flinched from the tasks involved. Order was brought out of chaos, and properties which had been failures under the proprietorship of the Messrs. Browning, of New York, and of that old-time vampiring concern of Dwight & Strong, became great money earners under the sensible domination of the Shelton syndicate and the engineering direction of Mr. Horton. Shortly after Mr. Shelton took over the properties Mr. Horton was elected a Director in the corporation, and in February, 1909, he was elected to the Presidency. Mr. Horton was a member of the American Gas Institute—he had formerly served its predecessor, the American Gas Light Association, in many ways, mainly in the line of active and excellent committee work—and was also prominent on the membership rolls of the National Commercial Gas Association, the Illuminating Engineering Society and the Association of Mechanical Engineers. He was prominent on the rolls of Tompkins Lodge, No. 471, F. and A.M., and held high degree in Tyrian Chapter, No. 211, R.A.M. and in Empire Commandery, No. 66, Knight Templars. He was a valued member of the Staten Island Club, also of the Staten Island Chamber of Commerce. He is survived by his widow and one son. The funeral services were held in his late home, 80 Vanderbilt avenue,

LIBRARY OF CONGRESS, JUN 24 1910, SMITHSONIAN DEPOSIT.

Clifton, S. I., the afternoon of last Wednesday, the Rev. D. A. Dodd, Rector of St. John's, Rosebank, S. I., officiating. The funeral services were completed the afternoon of Friday last, when the remains were laid to rest in the Horton family plot in Peconic Cemetery, Long Island, where the laving of the waters of beautiful Peconic Bay will croon to his memory, even though in his boyhood's days they softly lisped to him a lullaby. His life, all through its much too short span, was that of an applying student, a thoughtful counsellor and a companionable man.

THE END OF THE MEETING OF THE IOWA DISTRICT GAS ASSOCIATION.—The closing despatches by our special correspondent "McL.," relating to the final sessions of the Iowa Association, are as follows:

SIOUX CITY, IA., June 20, 1910.

Dear JOURNAL: The concluding sessions of the Iowa District Gas Association Sixth Annual Meeting (Sioux City) were called to order by the President-elect (Mr. Austin Burt, Waterloo), at 10 o'clock, the morning of the 17th inst. The convention first listened with evident attention to the paper on "Advantages of High Pressure in a Low Pressure System," prepared by Mr. B. C. Adams, of Lincoln, Neb. The paper brought out a good discussion that was ably shared in by Messrs. Chubb, Greene, Clausen and others. Following that was the lecture prepared by Mr. J. B. Klumpp, of Philadelphia, on the subject of the "A B C of Calorimetry." The lecture, which was excellently delivered by Mr. Norman Macbeth, was acceptedly accentuated by a number of lantern slides, was both highly interesting and pleasantly instructive, and was much appreciated by the Association. The President then announced the personnel of the special committees for the year, as respectively follows:

Gas Works Construction.—Messrs. C. N. Chubb, Wm. Bradford and T. B. Hopper.

Gas Manufacture.—Messrs. Wm. J. Bertke, B. C. Adams and A. W. Zahm.

Distribution.—Messrs. A. W. Borden, O. B. Matthews and G. M. Johnson.

New Business.—Messrs. G. F. Carson, R. M. Parker and E. B. Crady.

Membership.—Messrs. Campbell Fair, H. B. Maynard and C. N. Chubb.

Public Relations.—Messrs. L. L. Kellog, Geo. McLean and Jansen Haines.

Appropriate resolutions were adopted by the convention, expressive of the Association's appreciation of the services rendered by its officers, and its gratitude to Mayor Smith for the cordial welcome received from him; to the authors of the several excellent lectures and papers prepared for the meeting; and to Mr. L. L. Kellogg, Vice-President and Manager of the Sioux City Gas and Electric Company, for the excellent work of preparation and fine entertainment received by the Association from him and his courteous staff. Following the adoption of these resolutions, the President declared the convention adjourned *sine die.*—McL.

ILLUMINATING ENGINEERING SOCIETY, CHICAGO SECTION.—Mr. T. R. Beebe informs us that the June meeting of the Chicago Section of the Illuminating Engineering Society was held in the new restaurant in Lincoln Park near Center street, at 6 P.M. of Thursday last. The supper for this occasion was served in the named restaurant because one of the topics for discussion—the main one it proved to be—was the lighting arrangement of the supper room. It is finished in a rough tan brick and ornamental Rookwood tiling, and its dimensions are 84 feet by 48 feet, with a trussed slanting ceiling, the highest point being 33 feet, with a wall line of 21 feet. The lighting fixtures for the center illumination were two in number, with units arranged inside and around an ornamental glass globe. Also, there are twenty 3-light brackets around the sides of the room, at a height about 3 feet from the floor. The attendance was excellent and the discussion on the set topic was of such interest that we hope to soon reprint it.

CURRENT MENTION—

MR. R. M. REDDING, General Manager of the Macon (Ga.) Gas Light and Water Company, writing under date of the 14th inst., inclosed the following—Dear JOURNAL: The complaint man has so little opportunity to smile at requests shot at his head that I want to pass along the inclosed which we recently received: Dear sir - I dislike very much to trouble you, or to give you any trouble, but I am having trouble of the most troublous kind. Ever since I started this quarter-in-the-slot business I am deviled mighty nigh to death with the light. About the time I get settled to my reading or writing the light goes down, then it jumps up and makes a clicking noise in the meter. I am not up in meters, especially these slot meters, and I do not know whether there is a rat inside the meter or what is the matter, but there is something wrong with the insides of this meter. I like a steady light, such as I used to have, and would like to have you send out and have it fixed before night. I asked a neighbor over the 'phone what she supposed was the matter with my meter, and she replied that she thought it needed feeding with a quarter, and said that she found that it burned better if she put three or four quarters in at a time. On this advice I put in a dollar, and that dollar of my good money is resting somewhere in that meter, but it fails to bring the light. Will you please send your meter doctor out here at once and see what is the matter with it, and I will be gratefully yours, ? ?

[No. I.]

Review of the Twenty-fifth Annual Report, Massachusetts Board of Gas and Electric Light Commissioners.

[Prepared for the JOURNAL, by MR. H. THURSTON OWENS.]

The first of the Public Service Commission Reports covering the year 1909 comes as a silver anniversary number from Massachusetts. It is but slightly larger than its immediate predecessor, and fortunately is free from the verbose statements of opinion concerning the manners and methods of the various companies and individuals under its supervision, which have characterized the literary productions of some of the newer Commissions. The facts are presented in a readable and concise manner, and well indexed, so that those interested may readily draw their own conclusions.

The companies and plants reporting were divided as follows:

	Ordinary Private Companies.				Municipal Plants			
	Gas.	Elec.	Comb.	Total.	Gas.	Elec.	Comb.	Total.
1908 ...	51	69	24	144	None	22	4	26
1909....	42	57	45	144	None	20	4	24

The marked change in the character of the private plants, where the number of combination plants nearly doubled while the total remained the same, is in great contrast with the policy of the Boston Company, which disposed of its electric lighting properties during the year.

The new incorporations and the various recommendations for legislation have been duly chronicled in the JOURNAL, and accordingly need no further mention at this time.

Capital Stocks and Bonds.—The applications for the issuance of stocks and bonds numbered 20, and all were granted, the figures for the past three years being as follows:

1907.	1908.	1909.
$4,384,500	$1,687,200	$7,398,755

Income.—The incomes from the four types of plants all show handsome increases, and the figures for the past 3 years are given in Table I.

TABLE I.—*Showing Income from Private and Municipal Gas-Electric Plants for the Past Three Years.*

	1907.	1908.	1909.
Gas Companies	$9,789,482.74	$10,433,307.52	$10,871,534.68
Electric Companies ...	9,776,430.63	10,401,550.49	10,558,069.67
Municipal Gas Plants ...	225,365.48	251,638.85	261,217.36
Municipal Electric Plants	449,468.96	503,380.82	579,406.71

Income of Gas Companies.—The increase in income of gas companies was nearly three times that of electric companies, and, as usual, the major portion of this increase in the case of the former was in sales of gas by meter, which represent nearly 89 per cent. of the total income, or about the same as in former years. The receipts from sales for public lamps show an increase of over $11,000.

The 1909 figures, compared with 1908, show a loss in the following items: Sales of coke and tar; rent of meters; gas stoves and engines; and for public lamps other than gas lamps.

Income of Electric Companies.—The figures covering income of electric companies during 1909 show some curious results. The income from the sale of commercial arc and incandescent lamps by meter, which represents over one-half of the total, shows a loss as do the sales of commercial arc lights by contract, public arc lights and rent of motors. All other items show an increase, the most significant one being the sale of commercial incandescent lamps by contract; this means flat rate business. The reverse of this is true in municipal electric plants.

The question of flat rates is closely allied with that of maintenance, and it is the open sesame for gas companies who desire to obtain such commercial lighting which has been handled of recent years by the electric companies.

Expenses.—The figures for expenses, similar to those for income, are given below in Table II.

TABLE II.—*Showing Expenses of Private and Municipal Gas-Electric Plants for the Past Three Years.*

	1907.	1908.	1909.
Gas companies.....	$6,997,830.11	$7,690,012.50	$7,668,867.97
Electric companies	5,715,467.50	6,145,599.80	6,279,046.26
Municipal gas plants... ..	165,574.10	180,167.41	186,357.43
Municipal electric.....	423,642.06	512,504.13	544,779.80

Expenses of Gas Companies.—While gas companies show the largest increase in income, they are also the only ones to show a decrease in expenses. The expenses are divided into 27 items, and of these 11 are smaller than for the preceding years. They include coals and enrichers, repairs and maintenance of works, and repairs, renewals and maintenance of mains and services. The principal item of increase was in gas bought, which soared from 814 to 879 thousand dollars, whereas the income from gas sold to other companies decreased from 491 to 457 thousand dollars.

[Official Notice.]

THIRD ANNUAL CONVENTION, CANADIAN GAS ASSOCIATION.

Held in Alexandra Rink, Hamilton, Ontario.

First Day.—Morning Session.

The Third Annual Meeting of the Canadian Gas Association was held in the Alexandra Rink, Hamilton, Ontario, Thursday, June 9th, the meeting being called to order at 10:30 A.M., by the President, Mr. J. S. Norris, of Montreal, who said: I have much pleasure in calling to order the third annual meeting of the Association. By way of preliminary we will do something rather unusual—at least, unusual for the Canadian Gas Association. As we have with us to-day Mayor McLaren, of Hamilton, I will call upon His Worship to say a few words.

THE MAYOR'S ADDRESS.

Mr. Chairman and Gentlemen: As you are aware, one in my position, although I have not been very long in the municipal field, naturally meets a good many people in the gas business. In the short time that I have been in this position I probably have met more than my share of gas men, but this is the first time I have had the opportunity of meeting an association of gas men who charge for their goods. Usually we get it for nothing, with a meter on and the machinery thrown in. [Laughter.] I am pleased indeed to be present at this meeting of gas manufacturers and those interested in gas appliances. We, in Hamilton, have done all in our power to make this a manufacturing city, and desire it to become the home of all the manufacturers on whom we can lay our hands. We think we are prepared to show them that we have the place in which to do business. However that may be, the people of Hamilton want the best goods they can get for their business, and if such cannot be got in Hamilton, they will look elsewhere. They want to see the machinery that will produce the best results for them. We feel proud that the first exhibition of this kind in Canada is being held in our city, and hope the people will take advantage of it while it is here, because, however much you may advertise in the newspapers, nothing else will produce results similar to seeing the goods for yourselves, watching the machinery working, etc. And I hope and believe that you will be well repaid for the trouble you have gone through in arranging this exhibition. From what I have experienced from this one I am sure it bespeaks the largest possible success for your succeeding exhibitions, wherever they may be held. I hope while here you will all enjoy yourselves, certainly taking a good look around Hamilton. I am sure our Industrial Commissioner will do everything in his power to give you any information you may desire. And even after the close of this convention, or when you get home, we shall be pleased to furnish you with any information which you may think will be beneficial to you.

I hope you will derive profit from the convention from a business point of view, and after you have gone a few of the rounds, visiting the gas companies in the different cities, I hope you will come back to see us again, and I will bespeak for you from the citizens of Hamilton a hearty welcome. [Applause.]

Reply of Mr. E. J. Philip.

Mr. President, Gentlemen, your Worship the Mayor: On behalf of the Canadian Gas Association I thank you for your welcome. Many of the gentlemen here, no doubt, are not acquainted with this city. Having been here a great many times I have many pleasant recollections of your city. A remarkable thing about Hamilton is the astonishing rapidity of its growth, and Canada is proud of Hamilton to day. Looking over the city you will observe it is not as great a manufacturing point as some other cities, but the rapid growth it has attained is simply astounding. We are pleased to come here and, on behalf of the Canadian Gas Association, allow me to thank you for your words of welcome.

The Report of Nominating Committee

was called for, and Mr. Philip, answering for the Committee, said: Mr. President, your Nominating Committee have the honor to present the following names:

For Honorary President—Mr. J. S. Norris.
" *President*—Mr. Arthur Hewitt.
" *First Vice-President*—Mr. E. J. Philip.
" *Second Vice-President*—Mr. A. W. Moore.
" *Secretary-Treasurer*—Mr. J. Keillor.

For Executive Committee—Messrs. J. F. Leishman, J. M. H. Young, R. A. Wallace, Charles Forbes and P. S. Coate.

The President—Next in order is the reading of the minutes of the last annual convention. If agreeable, we will take them as read, and will call upon the representative of the Executive Committee for their report.

Report of Executive Committee.

A large portion of the work done by the Executive during the past year has been in connection with the removal of the duty on bituminous coal, used for gas making purposes. It was decided at our last annual meeting to put forth every effort possible to secure the removal of this duty, and while nothing definite has been accomplished this year we are pleased to inform you that results, as far as we have gone, have been highly satisfactory. We wish to thank all the gas companies for the hearty support given the Association, both financially and otherwise. Another thing which interests the members of this Association relates to the changes made in the Gas Inspection Act, regarding the testing of meters. The previous permissible error in meters was 4 per cent. in favor of the consumer and 3 per cent. in favor of the company. This has been changed to 3 per cent. and 2 per cent. respectively. We felt that the Department were mistaken in making this ruling without consulting the Association and the gas companies, but as there is a committee at the present time taking up the question of candle power with the Department it was decided to let the matter rest as it is for the present. A very strong committee, headed by Messrs. Hewitt and Keillor, have charge of the candle power question, and as a paper on this subject is to be read at this meeting, you no doubt will hear further regarding it. One thing that was accomplished this year, largely through the energetic efforts of our highly esteemed Past President, Mr. John C. Hay, was the weighing, at the port of entry, of bituminous coal imported into Ontario. While the retail coal association, of which Mr. Hay was also President, was instrumental in introducing this subject, that body gave it hearty support and contributed towards the expense of putting it through. We gained a sweeping victory and were awarded practically every point. The ruling says that, at the request of any consignee desiring to have any car or cars of bituminous coal weighed at the port of entry, he shall give a written notice to the local agent of the railway company receiving such coal, at the port of entry, where he wishes the cars weighed, and it shall be the duty of the railway to weigh such coal at the port of entry, free of charge. Further provisions were made in respect of finding underweight cars which will not be dealt with here. It might be well to call the gas companies' attention to the fact that this order is not being taken advantage of to the extent that it should be. After this order has been in effect 1 year (December, 1910) any person or company affected may apply to the Board of Railway Commissioners to vary or rescind it. Every gas company is asked to obtain a copy of this order from the Railway Board so that they may be posted. What we want to impress upon you, however, is that, if you have not already done so, to instruct your railway to weigh your coal. It will not only be beneficial to yourselves, but will also help to keep this order in force, as it is only to be expected that if all importers do not take advantage of it, the railways, at the expiration of the year, will ask to have it rescinded. This order does not apply to gas companies alone, but to all importers of bituminous coal.

We are very pleased to speak of the flourishing condition of the Association, which now numbers 97 members. We feel that this organization has brought the Canadian gas companies together in a way that was heretofore impossible, and hope the venture undertaken this year in the matter of a gas exhibit will be the means of still furthering our pleasant acquaintances, and it will surely prove of value and interest to all. A large amount of work has been necessary to get this gas exhibit going, and too much praise cannot be given to the men in command. No effort has been spared to make it a success. They have given their time for weeks to the work and we feel they are deserving of our greatest thanks for making the first gas show in Canada such a success. [Applause.]

Mr. Coate—I have much pleasure in moving the adoption of this report. [Seconded by Mr. Mann and adopted.]

The President—The next order of business is the report of the Secretary-Treasurer.

This having been presented and read was, on motion of Mr. Wilkinson, ordered received and indorsed.

Vice President Hewitt here assumed the Chair, and President Norris read the following

INAUGURAL ADDRESS.

Gentlemen of the Canadian Gas Association: It gives me great pleasure to welcome you to this beautiful city of Hamilton upon the occasion of the third annual convention of your Association, and know I can bespeak for you, on behalf of the officials of the local Company, a hearty welcome to their plant; otherwise, you are in the hands of the Entertainment Committee, and I have no doubt that as usual you will be well taken care of.

According to precedent, it is the custom of your President to address you in annual convention on matters of current interest to the industry, a pleasure for this year belonging to your humble servant.

Gentlemen, your Association, while still in its youth, has served a very laudable object and filled a long-felt want; in fact, in the mind of your humble President, it is a matter of surprise that its organization was not conceived earlier, if for no other object than that of fraternizing between those interested in the gas business of Canada, whose objects are common, interested as we all universally are in the production and distribution of gas under more or less like conditions; and, while not altogether (as is sometimes alleged) from a philanthropic standpoint, yet with due regard and respect for our clientele. This leads me to say, if we cannot, from a scientific or technical standpoint, and in an educational way, take the initiative and promote our knowledge to as broad an extent as some of our sister Associations to the south of us and elsewhere, it is only because of our restricted field. But we must not become discouraged on this account, for, I repeat, if the Association serves no other object than that of establishing a spirit of fraternity among the member companies, with an interchange of ideas, statistical and other information that is more or less common to all of us, it has served a practical object well warranting its creation and maintenance.

We, however, serve a broader object than this; for your Executive have had under consideration during the past 2 years, amongst other things, some proposed legislation which, if adopted by our Government, will have a beneficial effect on the gas-consuming public at large. I refer principally to the coal duties and the question of substituting "calorific" for the present "candle-power" standard in the Dominion Gas Inspection Act. Both these subjects have had the earnest consideration of your Executive; and while the coal tariff has constituted the basis of more than one memorial at Ottawa from your Association, without practical effect, your Executive are not at all discouraged; in fact, are hopeful of some practical results at a not far distant date. These are matters that, single-handed, no one company, irrespective of its influence, could attempt with any degree of hope; hence another very justifiable reason for the existence of your Association.

As regards the standard of gas supply, the Gas Inspection Act has been amended at the past session of Parliament, to empower the Government in Council to establish regulations: First, as regards the pressure under which gas is to be supplied; second, regarding the calorific value of the gas supplied.

This legislation cannot be construed as inimical in any way; in fact, as regards a standard of calories as stated, at the instigation of our local member, it was the intention of your Executive to petition the Government for legislation on this point, or the adoption of a calorific standard in conjunction with the reduction of the existing and admittedly more or less out of date illuminating standard. And to this degree the work of the new Executive will be simplified, for I wish to express the hope that the Executive will follow this matter until, in accordance with European and American precedent, our Inspection Act is modernized and brought up to date in this important feature.

Gentlemen, I am not here to-day to rehearse or recall the great progress of our industry; it is apparent to all of us. From the scientific side of this progress our member companies are dependent largely on their engineers and the technical press, and while, as before intimated, the chief function of your Association, in the mind of your President, is not so much educational, on account of its limited and restricted membership, as it is that of fiscal policy, yet we must not lose sight of the educational; for, bear in mind, gentlemen, that the men and boys of the profession, who are in subordinate positions to-day, are struggling on towards positions of responsibility, and to those without the advantage of an advanced education we must lend our aid. In this connection, I am very pleased that our energetic committee on papers have developed matter that will be submitted and give us food for thought, and I venture to forecast, as a reward to the authors of these papers, a full and liberal discussion of same. From the commercial side (and it is perhaps from this standpoint that more progress is being developed in the industry) we find ourselves, and with admittedly good results, adopting "new business" methods that our predecessors, even of recent years, have time-and-again, I have no doubt, refused even a hearing; but such has been the evolution of the industry that gas is being marketed to-day in much the same way as any other commodity, and it is a common thing to hear of "house-to-house" canvass to induce increased usage, consistent with economy, where service is already being supplied, and inaugurating service amongst those who, through ignorance or otherwise, adhere to the older day methods of lighting and cooking. I say we find ourselves adopting and becoming enthused with these methods of marketing our product, which in itself is evidence of the value of the service. There are hundreds of ways of applying these methods. Our new business manager at Montreal is scheduled to tell you some of these applications, and, speaking of Montreal, where, unlike the majority of cities, the gas and heretofore rival electric interests are one, it has been proved conclusively that the interests do not in any way conflict, even in the solicitation for new business; for, unlike the policy of promoting electricity for lighting purposes and gas for cooking and industrial purposes exclusively, with separate and necessarily rival salesmen, that is in vogue in several large cities operating under like conditions, the Montreal Company has very successfully adopted the policy of promoting its business, without conflict, as a whole, with one common organization of salesmen who are out to promote both branches of our business to the utmost, conserving existing investments in respect of each branch of the business. And, candidly gentlemen, I cannot perceive the economy of other policy where, with separate organizations and necessarily rival salesmen, regardless of consequences, to promote their particular end of the business. We have had it in our experience at Montreal, with regretful consequences, where, after making an investment to supply either one or other of our commodities, the rival salesman has followed and induced the customer to "switch" to his particular commodity, thus rendering valueless, or at least largely so, the prior investment.

In conjunction with these new business methods, and as a necessary sequence to same, and in order to create better public sentiment, we find the larger companies throughout the country organizing Employees' Associations and Social Clubs, all with the one object of permanently establishing our business by courteously catering to the wants of our consumers.

Our energetic Secretary has submitted to you a statement of our numerical and financial status which is very gratifying, and your Executive has told you to what extent the fiscal policy of your Association has progressed during the year.

In conclusion, and upon vacating the honorable more than laborious office to which you were gracious enough to elect me a year ago, I desire to record my high appreciation of the good fellowship existing between the officials of our various member Companies, and to thank you for the honor of the office. [Applause.]

On motion of Mr. W. H. Pearson, seconded by Mr. F. Burnett, the address of the President was ratified in all particulars.

The President—Before we get to the papers, which is the next order of business, I think we might proceed with any new business if there is anything of such nature to discuss. Has any of the members anything to bring up which would be of general interest? While we are waiting I should like to have a word from an old friend whom I see present in the person of Mr. John Coate, who is invited to address us on any subject that would be of interest to the Association.

Speech of Mr. John Coate.

Mr. President and Gentlemen: I really did not expect to be called upon to say anything at this convention. However, I am exceedingly glad to be here to meet so many old friends, and a great many new ones also. I suppose, as I have had about 28 years' experience in connection with the gas question, I can hardly beg off or make a like statement that a certain professor did when asked why he lectured on astronomy. His reply was, "Because I know least about it, therefore I cannot be hampered with details." [Laughter.] And this is the only subject I have ever studied or known much about in an engineering capacity. I am glad to see my old friend, Mr. Dunderdale, here to-day. We had considerable experience together erecting gas works in Australia and New Zealand. We would get a franchise in small towns of say, from 4,000 to 20,000 inhabitants, raise the capital and light them. There was no electric light in those days. I see two friends here from Ottawa to day who were keen rivals; but I am pleased to know that they are now converted to gas. [Laughter.]

My friend, Mr. Dunderdale, in those days I have referred to, would come along getting customers, putting people on the mains, sometimes getting 200, oftentimes 500 consumers in a town, according to its size. There was a genuine boom on in Australia and New Zealand then, but as soon as Mr. Dunderdale left the boom collapsed. Now he has gone to Winnipeg, and the gas boom has started there. [Laughter.] I do not know what I can say further, except that I cannot understand why we had not attempted such a Gas Association at an earlier period. A tremendous amount of credit is due to the three gentlemen (I will not mention any names, but think I know who they are) who gave this Association birth. Now there is one started in Australia. My friend, Mr. Hunt, who passed through here the other day, is the present President of that Association. He is a son of the notable Mr. Charles Hunt, formerly engineer for the Birmingham (England) Gas Works, one of the most successful municipal gas works ever established in the "Old Country." This Association in Australia is very successful, and I hope, Mr. President, that ours will be even more successful. [Applause.]

The President introduced Mr. W. C. Philpott, who read a paper on

SOME METHODS OF MEASURING LIGHT.

The measuring of light may be said to belong to one of the more important branches of physics. The sense of sight enables us to determine the difference between light and dark, and we can, with the aid of the eye, determine the difference of intensity between two or more sources of light. We can judge when one light is brighter than the other, yet our sense of sight is incapable of deciding with precision how many times one light is brighter than another.

The measuring of light is, therefore, in the first place, dependent upon the sensitiveness of the eye, and by this, together with the aid of proper instruments, we are able to determine (to a good degree of accuracy) the intensity of one light compared with that of another.

The measuring of light is based on various laws, the chief of which is that of the law of inverse squares. That the intensity of light varies inversely as the square of the distance from the source of the light is the fundamental law of photometry. This law holds good for lights when placed in the horizontal, but when it is necessary to experiment with lights out of the horizontal, we have to use the general photometric law, $e = \frac{I \cos 6}{D_2}$. Where "e" equals the light effect (to be ascertained in foot candles) equals I, the power of the source of light multiplied by the cosine of the angle of the incidence divided by the square of the distance from the screen. When we speak of certain sources of light having a certain candle power, we mean that the source placed at a given distance from a surface illuminates that surface so many times more than does that of a candle placed at the same distance.

Many of you are familiar with the Bunsen method of ascertaining the relative value of artificial light. In his arrangement Bunsen invented and employed a screen or disk of paper, greased over part of its surface, so as to render it partially translucent. The disk was supported on an upright and the two lights were placed one on one side and one on the other of the disk. The smaller light was then brought towards the disk until the disk was equally illuminated on both sides. The distance from the disk to the center of the source of the light was then measured and squared, and the quotation obtained from the division of the one square with that of the other resulted in the relative illuminating power of the flames.

The Bunsen photometer, although a good instrument, has been greatly improved upon, with the result that not only more accurate measurements are obtained, but also the measurement of different colored lights (such as those given out from incandescent lamps and electric lights) can be made with accuracy. In comparing and measuring the intensity of various lights one must of necessity have a standard to which to work. It is to be regretted that there is no common standard of light. Various countries have various standards, and this prevents the result of work done in one from being compared (with accuracy) with that done in another. As it will be of no avail to discuss the merits and demerits of the various standards of light used in different countries, I will confine myself to the official standards of the English speaking countries.

The official standard which long held sway in England was that of the standard sperm candle. This standard has now been replaced with that of the 10-candle pentane lamp. It has been proven many times by photmetrists that the sperm candle is a very variable and far from convenient standard. The trouble given by the unevenness of burning, with its consequent results in an unevenness of illuminosity, the sensitiveness of the flame to draught, and the effect of barometric and thermometric changes are quickly shown by the varying length of the flame, and the attention which had to be given to the candles prevented close attention being given to the reading of the disk. It is well known that much greater accuracy in the readings of the disk box can be made when the eye is unaffected with outside sources of light.

The 10-candle pentane lamp as a standard of light has to a greater extent minimized the aforesaid difficulties. This lamp is shown in Fig. 1. This standard is constant when used under normal condition, and gives a clear, steady, white light equal to 10 candles. The flame is shielded from draughts by a metal shield, and, owing to its chimney, has a more stable flame than that of the candles. The flame can be raised or lowered with great ease by the operator without moving his position, and its flame can be discerned with the aid of a revolving mirror, which reflects the length and shape of the flame to the operator, and this arrangement prevents any extraneous light reaching the eye of the operator.

The fact that the flame is larger and longer than that of the candle flame will go to prove that it is much less susceptible to air currents. It is, however, open to discussion whether any kind of flame is suitable as a standard of light. All flames are liable to variation, due to the different surrounding circumstances, such as temperature, pressure, condition of air in regard to water vapor, and purity of the substance used. Knowing that all flames are subject to variation it would be most desirable that an electric standard, capable of giving a constant candle power, be used as a standard of light. With this in view experiments have been made with the electric glow lamp as a standard of light, but unfortunately the results have not been satisfactory. The electric glow lamp is useful as a secondary standard, but it is necessary to constantly check its candle power against the 10-candle pentane lamp.

However, given a well ventilated photometer room, and the temperature of 60° to 70° F., the pentane lamp may be said to be an accurate and constant standard of light. The only uncontrollable element is the variation in the barometric conditions, and for this a correction is made, in cases where the light under test is an electric lamp, which is supposed to be unaffected with barometric variations.

The gas under test is burned in a specially constructed burner. The burners used are usually those of the Argand type. Fig. 2 is a

Fig. 1.

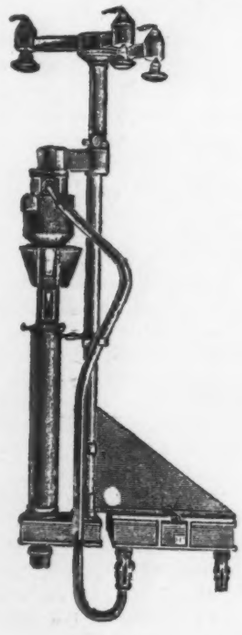


Fig. 2.

sketch of Sugg's London Argand, No. 1. This burner is constructed for testing gas of a certain candle power, this candle power being 16. The inventor claims that, when the gas is around 16 candles, and the gas passing at the rate of 5 cubic feet per hour, the burner gives true efficiency; but the gas made on all works varies in quality, and it is impossible to make gas of a specified candle power. The variation in the quality of gas tested in this burner has been partially allowed for by Mr. Sugg. He recommends that for gas of 16-candle power or over a 6-inch by 1¾-inch chimney be used, and for gas of lower can-

dle power a 6-inch by ¾-inch chimney. The reason for using different sized chimneys with this burner is due to the fact that gases of varying quality require varying volumes of air for combustion, and the changing of the chimney had the effect of decreasing or increasing the air supply to the flames. This arrangement for controlling the air supply, although helping to some extent, does not have the desired effect of regulating the approximate amount of air to bring out the maximum candle power. It will be self-evident that, to obtain maximum light from the combustion of an illuminating gas, the agents taking part in such combustion must be under control. As combustion is a purely chemical process, it is apparent true efficiency can only be obtained when that process is controlled.

As will be noticed no provision (other than changing chimneys) has been made for regulating the proper volume of air necessary for combustion. This variation in the volume of air passing to the flame may be caused by reason of the great or small volume of flame in the chimney, the temperature of combustion, and, to a very great extent, the quality and chemical composition of the gas.

This difficulty of controlling the air supply has now been overcome. A burner has been designed and made by Mr. Charles Carpenter, London, England, which has the desired effect of regulating the air supply to the flame in such quantities as to bring about perfect combustion without any undue excess of air. Fig. No. 3 gives a full size sketch of the burner, which is known as the No. 2 Metropolitan.

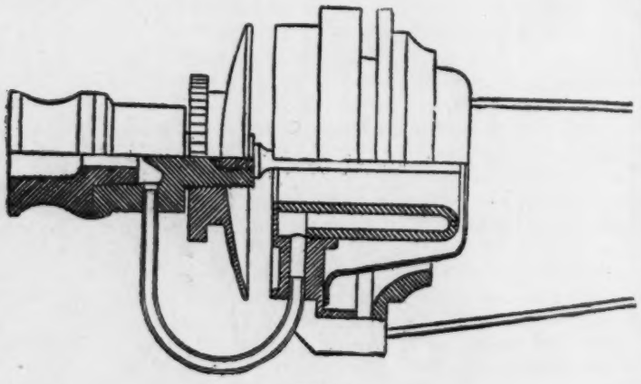


Fig. 3.

It is similar in construction to the No. 1 Argand, the main difference being that at the base of the steatite ring is placed a circular plate, which plate is screwed to a central rod and can be revolved, thus closing off or opening the air supply to the center of the flame. A 6-inch by 1⅛-inch chimney is used with this burner. The burner has been found to give a true illuminating value of all kinds of gas, while the London Argand is only suitable for gas of one quality.

The different qualities of gas as previously mentioned require different volumes of air to support combustion. Coal gas of a stated candle power requires more air than pure water gas of the same candle power. These differences in the volume of air necessary can be allowed for when using the No. 2 burner. There is no difficulty in obtaining enough air for combustion; the danger lies in obtaining too much. With an excess of air the flame becomes diluted and shortened, with the result that the true illuminating value of the flame is not obtained.

It will be interesting to note that, up to the present time, about 80 gas companies in England have been given permission to use this burner in preference to any other standard test burner.

Fig. 4 gives a sketch of the latest ideas in photometers. The gas is burned in a No. 2 Metropolitan burner, and the standard lamp is the 10-candle pentane. This photometer is being supplied by the makers, Messrs. Alexander Wright & Co., to many gas companies in England. It embodies all the vital conditions set forth in the regulations for gas testing in England.

The photometrical work which is done on a gas works is chiefly that of obtaining the candle power of the gas supplied to the consumer. The standard gas burner is placed opposite and in line with the standard of light. The disk box is moved until equality is obtained and the candle power read off directly from the bar. Correction must be made for rate of flow of gas, if in excess or slower than the specified rate; corrections for temperature of gas and barometric pressure must also be allowed for. Testing for candle power, when the lights are on the horizontal plane, and with lights of a similar

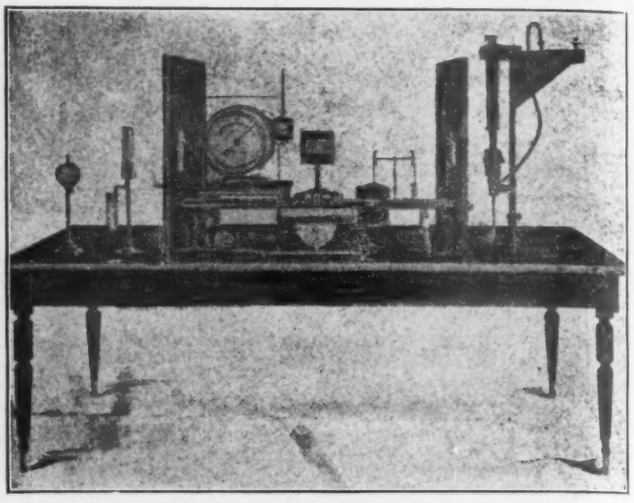


Fig. 4.

color, is not a difficult matter; but when it beomes necessary to test and compare lights giving various tints and at varying angles, it becomes somewhat more complicated. The difference in color of various lights is due to their variable spectral composition. We all know the difference between gas light and daylight. The difference is most marked, and the gas light looks yellow compared with the sun's light. However, if we compare an incandescent gas light with daylight, the difference is not so great. This is due to the spectral composition of the light from an incandescent lamp being similar to the composition of daylight. The difference in the composition becomes more noticeable when one attempts to compare their intensity.

Great difficulty is found when testing an incandescent lamp against a pentane standard, using the ordinary disk box. For comparing different colored lights, a special disk box has been invented. By using what is known as a Simmance-Abady flicker disk box, shown in Fig. 5, the difficulties due to the different tints of lights are over-

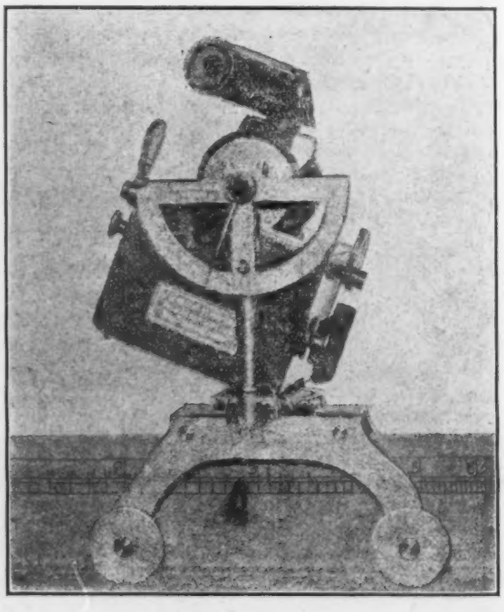


Fig 5.

come. The disk box is fitted on the inside with a reflecting wheel Fig. 6, which reflecting wheel is revolved by means of a spring motor, and upon this wheel falls the light from the standard and the lamp under test. The rays of light strike the sides of the wheel alternately and with a rapidity which is determined by the operator.

It will be noticed a small telescopic arrangement enables the operator to watch the revolving wheel. When the lights striking the disk box are unequal in intensity, the operator will notice a "flickering" on the reflecting wheel, the disk box is then moved until the

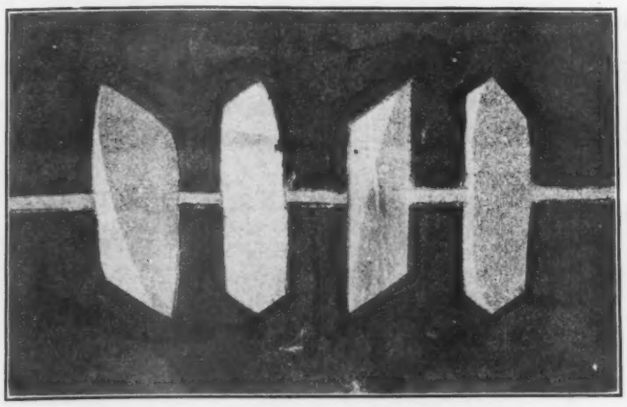


Fig. 6.

"flicker" ceases, and at this point the intensities of the lights falling upon the disk box are equal.

The distance between the center of the disk box, to the standard lamp and the lamp under test, are then squared, and the quotient obtained from the division of the one number by the other, multiplied by the power of the standard of light, gives the candle power of the lamp under test.

The speed of the reflecting wheel can be regulated at will. For very powerful lights a high movement is necessary, but for lower candle power a slower movement is desirable. Lights up to a power of 1,600 candles may be tested with an accuracy of about 2 candles. Incandescent lamps or electric lights can be tested against the pentane lamp or any other reliable standard.

It is necessary to remember when comparing lamps that some lamps send more light downwards than upwards, others more upward than downwards, and the true value of the lamp depends upon its shedding its light in the direction it is most required. For lighting factories, public buildings and large inside areas, it is necessary to throw the light sideways and downwards. For street lighting, a lamp is desired to send the greater part of its light sideways and not in a centralized area under the lamp alone.

As I have already mentioned, the light from different lamps are thrown in different directions, and it is necessary, when comparing the efficiencies of various lamps, to calculate their candle power on a common basis. To bring about this comparison the candle power of various lamps is usually expressed as the "mean spherical candle power," or the "mean hemispherical candle power." These expressions may be explained by imagining a light inclosed in a sphere or hemisphere set at a radius of 1 foot from the source of the light.

In any fair comparison of different lights, it is necessary to consider not only the light that is sent out horizontally, but the total light shed in all directions, which is proportional to the mean spherical candle power. It must, however, be borne in mind that the light rays thrown upwards are in some cases useless, and in these cases the true efficiency of the lamp should be calculated on the mean hemispherical basis.

The rays of light which would, under some circumstances, be useless when thrown upwards, can, with the judicious arrangement of reflectors, be made to fall downwards or sideways and thus become a valuable lighting factor. To measure the amount of light thrown in different directions, and at different angles, the flicker disk box is most suitable. It will be noticed the disk box is fitted with a quadrant graduated in degrees, and the box is capable of receiving light from 90° above to 90° below the horizontal.

Fig. 7 shows a photometer suitable for testing incandescent burners and lamps. It is fitted with a flicker disk box and an electric glow lamp, which acts as a secondary standard, the primary standard being the pentane lamp. The procedure of testing would be as follows: Having standardized the secondary standard, the sighting disk box must be turned until the lamp to be tested shows a speck of light upon the cross lines of the screen cover (the lense being turned up vertically). Read off the angle on the quadrant and readjust the box at half the angle indicated (*i. e.*, if the light is actually at 40° the box must be turned to 20°, thus presenting the same angle to both lights). During this operation the box must be kept stationary at the same point on the bar. Turn down the sighting lense and screen cover and start the motor revolving the reflecting wheel. The pentane lamp can now be masked and, by bringing up the secondary standard, the balance of intensity may be made. The two distances are then squared, the one divided by the other, and the quotient multiplied by the ascertained power of the secondary standard.

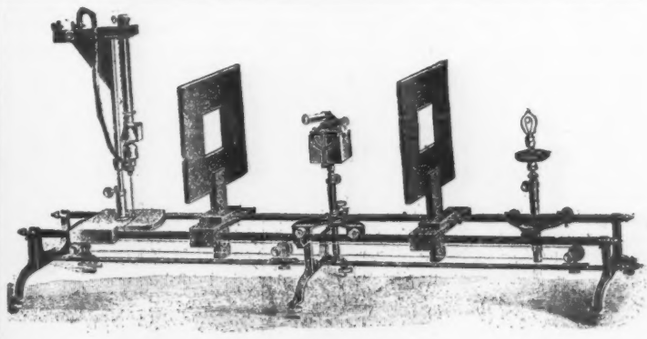


Fig. 7.

The inequality of the distribution of light from different lamps will be better understood by referring to the following figures:

Description of Lamp.	Direction of Rays Straight up.	Candle Power.
With shade		20
Upright Welsbach burner	67½° above horizontal.	32
Without shade	45° " "	50
	22½° " "	75
	... Horizontal.	63
	22½° below horizontal.	40
	45° " "	22
	67½° " "	15
	... straight down.	0
Mean spherical candle power of this burner		47.75

Description of Lamp.	Direction of Rays, Horizontal.	Candle Power.
With shade	22½° below horizontal.	58
Upright Wels. mantle with reflector.	45° " "	75
" " " " "	67½° " "	65
" " " " "	90° " "	27
Mean hemispherical candle power		60.29

Description of Lamp.	Direction of Rays, above Horizontal.	Candle Power.
Inverted burner with clear globe and reflector	15° Horizontal.	40
Inverted burner with clear globe and reflector	30° below hoaizontal.	43
	45° " "	43
	60° " "	48
	75° " "	40
	90° " "	42
Mean hemispherical candle power		43.046

Description of Lamp.	Direction of Rays.	Candle Power.
Humphrey lamp with four burners, clear globe, with reflector.	15° Horizontal.	410
Humphrey lamp with four burners, clear globe, with reflector	30° below horizontal.	330
	45° " "	355
	60° " "	188
	75° " "	185
	90° " "	150
Mean hemispherical candle power of this lamp being		320.28

The above tests are made with gas having a net calorific value of about 600 B.T.U. and a pressure of 2.5 inches head of water.

It will be noticed, by comparing the first two tables, the effect of using reflectors. The light rays from all lamps are, in the majority of cases, thrown in an upward direction, where, in the greater number of cases, it is less needful. The upward light can be intercepted and reflected in the direction it is most required. The type of reflectors and globes have all to do with good effective lighting, and a few hours spent in choosing suitable materials for the particular kind of lighting to be done would amply repay anyone having anything to do with inside or outside illumination.

Surrounding circumstances must also be given due consideration. The problems of absorption and emission of surfaces upon which the light falls must be reckoned with, and each particular case should be considered by itself.

Discussion.

The President—I can readily understand why a technical paper of this kind cannot be discussed at present, because it has not been printed. When it is so reproduced I think it will be well worthy the consideration of this Association. We are not up-to-date in this respect. If 80 per cent. of the English have adopted this improved

burner by request, it seems to me the Canadian Gas Association ought to include this in a memorial to the Government regarding calorific value, and endeavor to have the standard changed here. I understand, Mr. Philpott, that we are using the Sugg standard in Toronto?

Mr. Philpott—Yes.

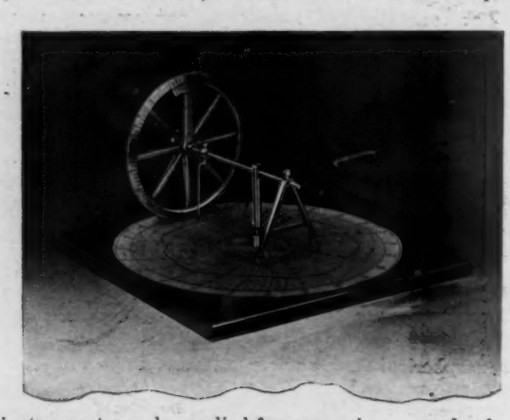
The President—I would like to hear even an informal discussion on this valuable paper, although our technical and engineering authorities are not ready to discuss it at this juncture. Of course, you understand this paper will be reproduced in the *Gas Journal of Canada*, when we will have more opportunity for studying it closely.

(To be Continued.)

The Bristol-Durand Radii Averaging Instrument for Circular Chart Records.

The Bristol Company, of Waterbury, Conn., has for the last 20 years made a specialty of manufacturing automatic recording instruments for pressure, temperature and electricity. Many thousands of these instruments have been put into practical service. As this class of recording instruments using circular charts has come into general use, there has developed a demand for a simple device to quickly determine the average of the record made on such charts, and the integral value for the whole 24 hours or for the time covered by the record.

This long-felt demand has been filled by the instrument illustrated herewith, which is based upon a fundamental plan, as worked out and patented by Professor W. F. Durand, of Stanford University, and is constructed in accordance with a novel design recently patented by William H. Bristol, President of the Bristol Company.



The instrument can be applied for averaging records of any kind on circular charts having uniform graduations; as, for instance, records of watts, amperes, temperature, pressure, etc. Recording instruments equipped with circular charts are, therefore, made available for a number of applications for which it was previously thought necessary to use instruments recording on straight lines or strip charts. Recording differential pressure gauges are coming into use for measuring velocities and volumes of liquids, air or gas flowing in mains, and this integrating device will prove of value for quickly obtaining total volumes of flow for any given period of time.

The simple construction of the instrument is shown in the accompanying illustration. A wooden base with a metal socket is provided for supporting and centering the chart. The socket holds a rotatable pin with a vertical slot at the top to receive the bar which carries the integrating tracer point and triangular support. The vertical groove in the rotatable pin allows the integrating wheel to roll on the chart with uniform pressure due to its own weight.

The integrating wheel is 6 inches in diameter, the rim being graduated into 100 numbered equal spaces, and is fitted with a vernier, which makes it possible to easily read with the naked eye to one-tenth of one division on the integrating wheel. The wheel is of such large size that it is not necessary to supply any counting device for the number of revolutions. The number of complete revolutions cannot be more than two, even for a record of maximum size on the large 12-inch charts. To operate the instrument the thumb and forefinger of one hand are applied to the base of the triangular support, which is moved radially, so as to cause the tracer-point to continually follow the record curve, while the chart is turned with the other hand.

By referring to a line plotted on a sheet of cross section paper, furnished with the instrument, for the particular record curve that is to be measured, the total reading for the entire 24 hours may be taken off directly. A full explanation of the theory upon which the operation of the instrument depends has been given by Professor Durand, in a paper presented at the New York meeting, American Society of Mechanical Engineers, 1908. This may be briefly summarized as follows:

In applying the instrument it is necessary to have a uniform radial scale, from which it follows that equal increments in the length of the radius correspond to equal increments in the watts, amperes, temperature or whatever quantity is measured. The integrating wheel, being carried at right angles to shaft passing through the center, does not turn and give a reading when the tracing point is moved on a straight radial line; but, if the tracing point is made to follow on a record, the integrating wheel will revolve and the amount of the revolution will correspond to the total of the circumferential elemental components of the record curve, the radial elemental components of the record having no turning effect on the integrating wheel.

As the lengths of the arcs of concentric circles for given angles, or for the entire circumference, are proportional to their radii, it is evident that the amount of turning of the integrating wheel, and the reading obtained thereon, will be proportional to the average radius of the record traced.

The instrument is adapted for integrating charts with either straight or curved radial time arcs. The correction necessary for radial time arcs which are curved may be made, after completely tracing the record, by returning the tracing point to a point on the chart having the same radius as the starting point, the movement of the tracing point being along an arc corresponding to the curved radial time arcs.

Requirements of Illumination.

Mr. W. E. Wickenden, in his recent work on "Illumination and Photometry," is to be congratulated over the manner of his classifications, to say nothing of other clever work in its pages. Here, for instance, follow some of his findings, as given on page 33:

(1.) The eye works with approximately normal efficiency upon surfaces possessing an effective luminosity of 1 lumen per square foot or more.

(2.) Excessive illumination and inadequate illumination strain and fatigue the eye in an effort to secure sharp perception.

(3.) Intrinsic brilliancy of more than 5-candle power per square inch should be reduced by a diffusing medium when the rays enter the eye at an angle below 60° with the horizontal.

(4.) Flickering, unsteady or streaky illumination strains the retina in the effort to maintain uniform vision.

(5.) True color values are obtained only from light possessing all the elements of diffused daylight in approximately equivalent proportions.

(6.) An excess of ultra violet rays is to be avoided for hygienic reasons.

(7.) Aesthetic considerations commend light of a faint, reddish, tint as warm and cheerful in comparison with the cold effects of the green tints, though the latter are more effective in revealing fine detail.

(8.) Attention is due the psychological laws of association and suggestion.

[Official Report.—Concluded from Page 1191.]

FIFTH ANNUAL MEETING, NATURAL GAS ASSOCIATION OF AMERICA.

Held at Oklahoma City, Okla., May 17, 18 and 19, 1910.

Second Day—Morning Session, May 18.

The President introduced Mr. A. G. Holmes, who read a paper entitled

IRON *VERSUS* TIN METERS.

[For the text of the Holmes paper, see Journal, *ante*, p. 1136.]

Discussion.

Mr. McIlhenny—Sitting here, with that plant between me and the President, I hoped he would overlook me in respect of responding on this subject. The fact that we make tin meters would naturally induce me to speak in a general way, so that these wouldn't be strong objection on the ground of talking of personal business

matters. As pointed out in the paper, tin meters were made first, and I think it is always worth while to look up installations upon any subject. The present type of tin meter is one which succeeded, after many trials of other types in England, where artificial gas was first established, and from the first to the present type of tin meter these are essentially the same as those made to day. The man who first invented it was truly a genius, and he anticipated the conditions which have largely been encountered since; of course, minor improvements have been made, but in principle the meter is the same. In England that meter came to be the standard, and was so finished when artificial gas was first introduced in the United States. Also, cast iron meters have been made for 30 years or more, which are about the same as the tin meters; in other words, a tin meter with a cast iron case. For some reason, English companies have largely abandoned the use of the cast iron case as applied to artificial gas. As to all the reasons why they have not used the cast iron case there instead of the tin I cannot tell you, but I would suggest that possibly those reasons would have applied, and they will also apply largely in this country and, as I will try to show you later on, largely to the natural gas as well. In the first place, the form of construction is more expensive than in the tin meter, and if the same object can be accomplished at less expense we naturally take to it. I think also that would apply in the present instance. Another reason is weight, which makes it that much more difficult to handle. In natural gas I can appreciate that at times the cast iron meter would have preference because of the locations in which it might be placed. The natural gas business deals with small communities that necessarily have not artificial gas, and the conditions are such that meters might have to be placed out of doors or in other exposed places, so I can readily realize why the heavy form of cast iron meter would not be suited to the conditions. With artificial gas, another objection to the cast iron type, which I believe has led to the non-success abroad, is that various forms of congestion prevent the old, oily meter from oil working into the meter through the joint that naturally works upon two hinges; and the gas escaping through it, as far as the gas and oil are concerned, without any such joint would be more apt to hang at this oily congestion, when in the solid joint of the tin meter it will find resistance. In that connection I will say there is a tendency to-day, both for artificial and natural gas, to insert within the meter case a certain quantity of oil. In artificial gas there is a certain quantity of it; also in some forms of coke oven gas, where the gases are admixed with benzole in order to bring out the candle power, the light oils are carried off, making it dry. In any natural gas, as I understand it, the compression of the gas for sending it greater distances is constantly increased, and in the actual act of compression the oily features, which frequently accompany natural gas, are cast out, so that when the gas is distributed it is dry and has a drying effect upon the diaphragm. In order to overcome that, both for artificial and for natural gas, a certain quantity of oil is introduced in the meter case, so that the lower part of the diaphragm rests in this oil, which keeps the lower end moist and in proper condition for work. There is also a very great objection in having oil in the top of the meter, for it will get on the valves and help to lubricate them. I will have to say for the gas meter that, taking into account the conditions under which it has to work, I think no other instrument for measuring has done its duty as well or as accurately as a gas meter. If it rests in a cellar on a platform it is working without attention, without repairs, for a number of years. I believe if you will take 100 of the best watches, starting them at the beginning of a year, and then take an equal number of gas meters, the latter would show a better average of accuracy than would the watches. This is a slight digression, however, from the subject. I believe I made myself clear on the question of distillation of oil near the valves and the effect of heat and dry gas on the diaphragm of cast iron meters, which would cause the leakage of gas, and, of course, would be a disadvantage around the premises. The early styles of tin meters were made to measure gas at its minimum, and when I first went into the establishment with which I am now connected that subject was up. I remember Mr. John Young, of Allegheny, coming to my room to discuss the question of meters, and I believe they were then running the first meters used for measuring metric gas. That was many years ago, and, as far as I know, those meters are still doing good service, which is a very honorable record. When in the Patent Office in Washington some years ago I saw models of the early types of gas meters, and it was remarkable to note the various types that were brought out years and years ago. In the process of development of meters for measuring natural gas many of those same ideas have been adopted. So I think that, in the long run, it will be found that the type of tin meter, which has stood the test of time for measuring artificial gas, and which, as the writer of the paper has stated, will absorb the highest amount of pressure in the passage of the gas and meet all the conditions best, will be found the best. [Applause.]

The President—Mr. Wallace, we would like to hear from you on this subject, if you have had some experience to give us thereon. Come up front, please.

Mr. Wallace—I haven't had much experience with the tin meters, my experience having been with the ironclad ones. So I cannot say from experience that they would run accurately in the last 3 or 4 years. Previous to that they would run fast, but for the last 2 or 3 years we have not had any of that trouble.

Mr. Macbeth—Have you had any trouble with diaphragms drying?

Mr. Wallace—No; not for the last 2 or 3 years. Previous to that we did, as stated before; but in the last 2 years we haven't had any trouble of that sort at all. Another thing about the iron meter that should be seen to is, when you set it out in the sun the oil runs out of it and leaks around its sides, or else the oil runs out and then the meter leaks and has to be tightened up. It would probably be well to have a little discussion on this, with a view to obtaining a remedy.

The President—Can anyone answer Mr. Wallace's question with regard to that proposition?

Mr. Holmes—Perhaps the best way to avoid that would be to set the meter inside or cover it up with a box so that the sun won't get at it. Such experience as that complained of will be detrimental to any meter, whether it be iron or tin.

The President—Mr. Garard.

Mr. Garard—I can't tell you just why, but I am an iron meter man. I do not know anything about artificial gas, since all my experience has been with natural gas. In the early days we wanted something that would stand the outdoor test, and we thought the iron meter would best stand it (we couldn't see but what it would register just as accurately as the other), so we started in along that line and have stuck to the iron meter all the way through. I haven't anything at all to say against the tin ones, because I know nothing against them. In so far as the registration between the iron and tin meters is concerned, I can't see there is any difference, from my personal experience.

The President—Well, don't you, in Columbus (O.) proper, use tin meters pretty generally?

Mr. Garard—No, sir; we use iron meters. The Columbus Gas and Fuel Company I believe uses tin absolutely, but we use the Tobey meter almost entirely.

The President—Mr. Strickler, give us some of your experience with the tin meter.

Mr. Strickler—I would prefer not to say much, although a great deal might be said on this subject of meters. One reason I like the tin meter over the iron is that the latter requires a person to take care of it. Anybody with a screw driver can tamper with an iron meter. My experience with gas meters has been considerable, that being my work for 15 years in connection with the Company with which I am at present employed. In all the experience of our Company I believe we have never at any time had an explosion that was caused through weakness of the case of a meter. With proper regulation and installation, I believe you need have no fear as to its security and ability to stand the pressure. I believe we have found the tin to be a little more regular than the iron meter. As I say, while I prefer to use the tin meter in general in our line of business, I have nothing to say against the iron meter.

Mr. Garard—I don't like Mr. Strickler's reflection on our city very much, in regard to the tampering with meters.

Mr. Strickler—I was not referring personally to your Company. [Laughter.]

Mr. Holmes—In view of Mr. Strickler's remark, some defense should be made of the iron meter. When he says an iron meter can be tampered with, thus giving the impression that a tin meter cannot be tampered with——

Mr. Strickler—No; I wouldn't say that.

Mr. Holmes—Well, it would leave that impression. I never saw a meter made that couldn't be tampered with——

Mr. Strickler; No; nor I.

Mr. Holmes——whether tin or iron, because it is very easy with an expert machinist to bore a little hole in a tin meter, then solder it and fix it so it could not be told that it had been tampered with.

Mr. Strickler—The average consumer doesn't have that outfit, where they do have a screw driver.

Mr. Holmes—If the consumer wants to do it he gets the soldering iron.

Mr. Strickler—That is so, too.

Mr. Curtis—Our meter situation resolves itself to the tin meter for the inside and iron meters for our outside installations, and we have a situation there (Shreveport, La.) that perhaps most of you are not familiar with. It is that probably 95 per cent. of our houses or residences are built up on stilts or blocks, and it is almost necessary to install our meter practically where it is outdoors. For that reason we like the iron type of meter, and find that it is to our interest (at least, that is our best judgment) to set it in front of the house. When it is in said situation it is almost impossible for people to do a "stunt" of any queer sort, if they were inclined to do so.

Mr. Strickler—I would say again, that I think conditions, to a great extent, govern the requirements. For outside purposes, perhaps an ironclad meter is the meter, but for inside purposes, where they are protected and away from the elements, I think the tin meter is equally long-lived. No meter is made that does not need attention, one-way-and-another, in time. Even an iron meter, if set in a damp place, will rust out in time, and corrosion will take place and eventually rust it. Conditions have a great deal to do with the kind of meters that are required.

The President—I would like to hear from anybody else who has had any experience with meters.

Mr. Mitchell—We have used a couple of sample iron meters, and our worthy President, when looking around for someone to write a paper for this meeting, wrote to me to know if I wouldn't take up the subject of iron meters. I suggested to him that Mr. Holmes be invited, as I hadn't the necessary experience in those matters and that as Mr. Holmes had he should be invited to write a paper, for he was a manufacturer of both iron and tin meters. I think the gas meter is one of the greatest inventions ever made. As it stands to-day it is almost impossible to improve upon it. The iron meter described in this paper is simply an iron case around the old meter, with the exception of the bed of the diaphragm and the case, also the bolting of the frame of iron to the meter. These are all the difference I can see between the iron and the tin meter. I believe that the matter of the iron meter will be more interesting to us as we go along. The tendency of gas distributors is to carry increased pressure in the mains, so it will be safer for us to provide a stronger measurer than the tin meter; and it will be well indeed for us to take that into consideration.

The President—Mr. Sears has had a good deal of experience in different localities with one meter and other, and I would like to hear from him.

Mr. Sears—It looks to me a mistake to decorate a front yard with any kind of a meter. Even if you box a meter it is liable to suffer more from dampness and all kinds of accidents (to the dampness trouble especially in this Southern country) and the sun is pretty hot at times of the year. I think it is a great detriment to any meter to set it out of doors. I don't think it is right to allow it to be placed that way, and I don't think a consumer would be justified in demanding it. The proper place for a meter is either in the house or in the cellar under the house.

Mr. Stuchell—I have had lots of trouble with iron meters set on the outside in the winter in the snow. The sun would shine on the dial of the meter causing the moisture to run down and collect on the regular dial and as night came on that moisture would freeze. Of course, in the morning with the sun out it would thaw again. The ice would collect in the dial and freeze, preventing the free action of the meter. Sometimes the glass in the dial would break from the effects of the freezing. Probably it went on for we didn't know how long without the meter registering. I would like to know if anybody else had that trouble, and certainly at Wellington, Kas., we had lots of trouble from it.

Mr. Sears—On meters standing outside I had trouble from ordinary moisture getting in the inlet, thus shutting off the gas from that point. It would not have been caused if it had been set anywhere it was protected from the weather.

Mr. Connolly—At Carthage, about 3 years ago, we had trouble of that kind, but since that time they have given very general satisfaction. We are entirely satisfied with them,

The President—With the meters on the outside?

Mr. Connolly—Inside and outside, both.

Mr. Owens—I have never seen a meter of any sort that was set outside that it would not give some trouble. Such has been my experience. I don't believe it is a good plan to set a meter outside, under any conditions, if you can possibly get away from it.

Mr. Hammond—I enjoyed very much the paper that Mr. Holmes read, and am pleased to see he is converted from the tin meter to the iron meter. I know he tried to write a good paper in a purely impersonal spirit, and I thank him for the way he handled it. The reasons that he gives for preferring the iron meter to the tin are true in every particular according to the experience we have had. I would only say further that Mr. Sprague, inventor of the Sprague meter, is here, and perhaps he might say something also.

Mr. Sprague—I would like to say, in the first place, that I am not an addressor of audiences, and my position in connection with this subject of iron meters precludes me from saying very much about it. I would say, however, that a good tin meter is a great deal better than a bad iron one, and that if you can get a good mechanism in an iron case it is a great deal better than a tin meter, and to get the full light on the subject the Association might—perhaps not in a convention, but among themselves—discuss the details of the mechanism as contained in the iron meter under discussion. Another point I would like to make is, that when a man has trouble of any kind with a meter he is likely to declare that that meter is no good, but he should put it up to the maker and the inventor, and sometimes it is very simple, like this matter of the congestion from the oil. If they could ask me or show me what was the matter and would put it up to me to save it, I would say that I could do it very easily. All you have got to do is to tell me what is the trouble and I would guarantee to fix it. [Applause.]

Thereupon, after some minor discussion by Messrs. Davis, McIlhenny, Owens and others, it was regularly moved and seconded that a vote of thanks be tendered to Mr. Holmes for his paper, which motion was unanimously carried by a rising vote. On motion, the convention adjourned, to meet at 9 o'clock, the morning of May 19.

THIRD DAY—MORNING SESSION.

The Association met pursuant to adjournment. The President introduced Mr. H. R. Davis, who read his paper entitled

SOME REMARKS ON GAS COMPRESSION.

[For the text of the Davis paper, see JOURNAL, *ante*, p. 1137.]

Discussion.

Mr. Welch—The subject is one that it is almost impossible to determine where to begin to ask questions. Mr. Davis has touched on a few high spots connected with the business. There is a book written on this subject to-day, and 5 years from now probably another book nearly as large will be written on the same subject with new information. The industry of building gas compressing stations is developing. We are learning something new about it every day, and are intensely interested in it. One point that Mr. Davis referred to in connection with the business of transmission pipe lines and compressing stations is the difficulty of securing proper pipe lines and stations. It is a very intricate problem. So many conditions enter into it that anyone contemplating a long transmission system, and thinks he hasn't very much of a job on his hands, will find out before getting through that there is something to it.

Mr. Hammon—I am indeed pleased to hear a paper on a subject in which I have been very much interested ever since I first got into the natural gas business, and I think no more interesting problem is connected with the natural gas than is this one of compression. Shortly after my connection with the gas companies I saw some of the advantages that might come from natural gas compression, and began remodeling some old plants and improving their efficiency. Up to that time not much had been done that was of particular value. Just a few stations were pumping gas, and the first time I saw Mr. Pugh's station, in order to have any gas for his customers, he was hauling coal to the compressing station to run the compressors in order that he might have some gas left to pump. In one of the real experiences that came to my attention, a station that was pumping gas had some 15 inches vacuum, and every time the station started no improvement could be realized in town, and at the same time I had my doubts of any improvement, permanently; but we set the meter some miles ahead on the line and found that, when the station had been still for 12 or 14 hours, we had more gas passing through the meter than we had when it was running. The engines were consuming considerably more than the increased output of the wells. But that was just at the time when changes were beginning to be seen. When Carnegie's first large station was put in the advantages of it were shown almost immediately. One amusing incident came to my attention at that time. A competing company had gone into Green county, and nearly

all of the companies were drilling their wells back from the boundaries to protect each other's property and stood back 300 or 400 feet. A new company that came into the field didn't see the necessity of following the same plan as the rest of us. Ten Mile Creek was the boundary. But the foreman set his drill directly on one shore, and an officer of the Carnegie Company suggested that everybody must get back to the boundary, and would he not follow the same rule. No; he knew how to handle his own business. And so while he was drilling the Carnegie people also drilled on the opposite shore, immediately opposite. We had a foreman in the district who was fairly well acquainted with gas matters. A few months later the foreman of this competing company came to our foreman and told him that there was something the matter with the line, he didn't know just what it was, but they had a well that acted very peculiarly, and he wanted to know if the other man would go down and explain matters. He went there and put a gauge on the well, thinking that would determine how much the well was producing. The line pressure was something like 300 or 400 pounds. They put the gauge on the well and shut it in by shutting the gauge on the line and immediately the gauge on the well began to go down instead of up. The opposing company had a compressing station there so close that it was drawing something like 35 pounds, and they had a pressure of 250 pounds at the well to overcome, and so the pressure of the gas was going down the well and out on the other side of the creek. Hence it is not always for commercial purposes that gas compressing stations are built, but they really perform the benefit. Shortly after that we built a station in West Virginia that I believe has paid for itself three or four times over in the saving of drilling alone, but also the ability to lower the pressure at the well. I have never known a real, thoroughly, properly installed pumping station that hasn't paid for itself by the same token. Most people have been inclined to wait until they had to build a compressing station before they built. While they will surely, as a rule, have to build it some time, if they build it in the early stages they can save their bill many times at the compressing station by conserving the gas and still have it for delivery when they need it or when they will be compelled to have it later. The conditions of when it comes to getting the gas and when it comes to taking it to market from long distances are where it is absolutely indispensable. I believe it is a fact that in a long distance piping system built 5 years ago or more the plant could be duplicated to-day by the use of compressing stations, at approximately ¼ to ⅓ the original cost. I have been doing some work on the compressing which would be absolutely impossible 5 years ago—couldn't have been done 5 years ago. Nobody knew enough to do it, at least, and where the relaying stations don't consume more than 1 per cent. of the gas that goes through them. [Applause.]

On motion of the Secretary a hearty vote of thanks was extended to Mr. Davis for his interesting and valuable paper.

The President now introduced Mr. W. M. Welch, who read the paper prepared by Mr. M. G. Reynolds on

THE CARE AND INSTALLATION OF REGULATORS.

[For the text of the Reynolds paper, see JOURNAL, *ante*, p. 1039.]

Having concluded reading the paper, Mr. Welch added: Not being the auther of this paper, I will say it really ought to be discussed, for the subject of gas regulation is one that is very important. A great many phases of the question are really slighted by both the man who uses the regulator and the man who ought to use it or doesn't use it but uses the gas. We ought to know more about it. However, that will develop.

Discussion.

The President—You have heard that interesting paper read by Mr. Welch. The writer is not with us. I think this is a subject of vast importance to all natural gas men, or men who are distributing gas under pressure. I would like to have some discussion on the subject.

Mr. Welch—If there are any questions, I will endeavor to answer them. I would not wish to speak for Mr. Reynolds, however.

The President—We ought to go into this subject pretty thoroughly.

Mr. Whitehead—I would like to ask for information as to the danger or proportion of danger ahead of the regulator.

Mr. Welch—I don't know particularly what proportions he may have had in mind, but as the idea presents itself to me it simply means that dirt in the gas or in the pipe is drawn up to the regulator and clogs it with solid matter. It very often occurs that the screen becomes clogged up and the flow is cut off before it reaches the regulator. By figuring a little bit on the size of this receiver, I believe a large part of the regulator difficulty probably would be overcome. You may say that the size of the receiver might be 3 or 4 times the diameter of the pipe, possibly 6 times, depending upon the pressure. If you have very high pressure, of course, you will increase the size of your receiver; but that is a matter that can be worked out.

Mr. Stone—Mr. Whitehead asked about the devices for taking the dirt out of the line. Two methods are designated in the Wrinkle Department, one of which is found on page 68; and, by-the-way, the cut is upside down. I don't know how it happened, unless it is that Delaware is a dry town and Columbus is wet and this is the last thing he had to do before he went home. [Laughter.] In this case I read this wrinkle right now, and cut out that portion of it when it comes to talking about the "Wrinkle Department." Another scheme is shown by cut on page 62, and both these schemes are very good ones. The one on page 68 was tried first, and the amount of dirt coming through the line was so great that it was found impracticable to use it, and it wouldn't take it all out, hence the receptacle filled up so fast it couldn't be kept clear. This other scheme (cut No. 5, page 62) was adopted afterwards.

Mr. Garard—While talking about the regulation of gas I would like to ask the members in general if they have had an experience of this kind and whether they tried to overcome it in like manner. We have in our system some high pressure lines; for instance, a line of 142 miles, 18-inch line, from Cox county, O., to Cincinnati. From that we have various lines, and the line running down South goes to some of our smaller towns. We have had a great deal of trouble on the 3, 4 and 6-inch lines from the regulators freezing up. Some of those are located just where we cannot well have a furnace, and I give all this credit to one of our employees, our foreman, who suggested the putting in of a third regulator. We carry probably 150 to 200 pounds on this 18-inch line, and the same would be on the other. The foreman suggested putting in a third regulator, reducing from 150 pounds to 50 or 75 or whatever the case might be. There were two regulators and we put in the third, and never had a particle of trouble since—never have had a freeze-up on those lines. There is not enough gray matter here (tapping his head) that could tell yon how, but if anybody can tell I would like to know how it was, or whether it just happened so.

The President—Have you had any cold weather since?

Mr. Garard—Yes; same conditions in the atmosphere. The freezing took place some time before the holidays. After that time we had some extremely cold weather, but never had a particle of trouble with any of them. They have gone right along doing their work perfectly. If you don't know it and if anybody can tell me I would like to know.

Mr. Welch—I think Mr. Garard is trying to get up a little discussion here by wanting somebody else to tell what the trouble was and how he overcame it. In that connection, where we have a regulator reducing from various pressures, from possibly 225 pounds at one time to 75 pounds at another, we frequently have to visit the regular station. The regulators are located on the edges of the towns, as Mr. Garard's probably are, and we would have to visit them to open up the regulator on account of its freezing, although I am not going into a discussion of the cause. I think the idea suggested by Mr. Garard excellent. It might seem at first there would be objection to having three regulators to reduce from high to low pressure; but I believe it is a step in the right direction.

Mr. Hammon—Do I understand from Mr. Garard there were three stages in his elevation from high pressure to low? It is very simple what would cause the liability to freeze.

Mr. Garard—Tell me.

Mr. Hammon—My reason is this: The amount of heat absorbed, which causes the freezing, depends on the amount of expansion in one locality. The expansion of the gas from a high pressure to a low must absorb an enormous amount of heat, and if the expansion was less in any one locality the absorption of heat will be less and a lower tendency to freeze. By distributing the expansion through three separate stages he reduces his chances of freezing to ⅓ what he would if he had but one.

Mr. Stone—Do I understand, from the latter part of Mr. Reynold's paper, that there is a regulator (that is practical) that increases the pressure on the low pressure side automatically as the demand increases, and that it drops it again when the demand decreases? What I am getting at is this: Suppose we are running 6 ounces on the low pressure side and we have an unusual demand, do I understand that there is a regulator made which will automatically put 9 ounces on the low pressure side of it?

Mr. Sears—I understand there is not an appliance of that sort now,

but Mr. J. S. Connolly is working on that theory. Perhaps he can tell us something.

Mr. Connolly—I would like to ask the members if any of them had a similar experience to mine. We had two installations—two 8 by 10 regulators—reducing the line pressure from 175 pounds to 200 pounds, down to 25 pounds, serving a belt line. Those regulators were very carefully attended to at least once a month. They ran perfectly for a year, as perfectly as a regulator could, keeping the pressure to 25 pounds at all times. A morning in November one of them started jumping; that is, it would feed up on the belt line, increasing the pressure from 25 to 40 pounds, then it would suddenly close off, remaining so until that belt line reduced its pressure to about 15 pounds when it would open with a shock. We then cut in the other regulator, which had been working perfectly for a year. It soon acted like the other one—the only time the second regulator had been in use at all was when we were cleaning the first one. Well, we took the first regulator to pieces and examined it thoroughly to determine if the valves were worn to any extent whatever. We found no wear on the valves, yet we never could get it to work perfectly at 25 pounds pressure. We wrote the factory and a man came from the oil fields. He was an old regulator man, like Mr. Connolly, but he couldn't help me. I wrote the factory again, and they asserted my diaphragm was too small—9½ inches diameter. They sent me two new ones, 14 inches in diameter, and I put them on and haven't had any trouble since. The question I want to have answered is, why did this regulator work perfectly for a year and then go to jumping, and in a prohibition town, too? [Laughter.]

Mr. LaDow—We have had similar trouble, more or less, with regulators used on our wells, especially so last winter. Our field is only 4 miles from town, so we had to get the pressure down on each well. One especially big well that we didn't use got to throwing out shale every few days, to the extent that we were unable to take care of it. Our main man on going there said he could tell what the trouble was. A very small hole lets the gas pass from the main line around to the top of the regulator, and our difficulty was that this hole in the pipe leading around to the top of the diaphragm had become clogged with dirt, so the minute it stopped that pressure off the top of the diaphragm the wind passed through the regulator or opening, and we put an extension pressure on top of the diaphragm. We had that same thing again where two regulators were close together, but overcame it by placing the regulators further apart. Where we couldn't put them further apart we placed the standpipe or iron pipe sideways, which overcame considerable of that jumping.

Mr. Mitchell—This is a great subject, and no doubt we could talk about it all morning; but I understand we have quite a good deal of business before us, so I move, sir, we extend a vote of thanks to Mr. Reynolds for this excellent paper. [Seconded, put and adopted.]

The President—As Mr. J. C. McDowell (you will remember the message from him read yesterday) is unable to be with us, Mr. G. W. Barnes has kindly consented to read his paper.

Mr. Barnes—As a preliminary to reading this paper, I would remark it deals with one of the most important subjects which the Association can take up. I am not sure that any of us realizes how much this means to the gas fraternity. We, as representatives of the capital invested in it, and more particularly our principles or the men who furnish the capital, are vitally concerned. It should receive the marked attention of every member, not only as an interesting paper, but with regard to future action upon the subject in hand. I hope you will take this under consideration, in hearing the paper read as well as after it has been read.

Mr. Barnes then read the paper by Mr. J. C. McDowell, on

THE CONSERVATION OF NATURAL GAS.

[For the text of the McDowell paper, see *ante*, p. 1040.

Discussion.

The President—A most interesting paper is before you for discussion. As it is on a subject that is of vital moment to us all, I hope you will give it the consideration that its importance deserves.

Mr. Davis—At the various meetings of our Association we have listened to many interesting papers and have held discussions on important subjects, and there isn't a detail in the papers or the discussions that was not beneficial; but this transcends them all, for if gas supply fails our entire industry drops to the ground. I think the Association ought to put itself on record and advance some practical plan whereby we can effectively use our influence in the direction of preventing the waste of natural gas.

Mr. Hammon—I regret very much that it was impossible for me to be here yesterday, for I think yesterday one of the prominent men of Oklahoma spoke before you, and stating that there was a strong political pull in the Natural Gas Association of America. Wasn't something of that sort said? It was reported to me in some such language as that. I don't know just how it was put, but if there is any political power in the Natural Gas Association of America, with all its consequent ramifications throughout the country, it seems to me here is the place it ought to be applied, most strenuously and forcibly.

Mr. Hammon then related the history of natural gas in this country, recounting many instances of its unjustifiable, not to say criminal, waste; told of the many benefits to be derived from it and the improvements and movements in progress for its future use, and again urged action for its conservation.

Mr. Welch—There is no question as to the importance of this subject before the natural gas interests. Therefore, if a motion is necessary I make such a motion, that a committee be appointed for the purpose of taking up this subject; that this committee be a vacation committee; and that its purpose be to get in touch with every influence throughout the country, particularly in the natural gas producing States, to make earnest effort to bring about the regulations suggested in this paper. Another thing. This matter is of such vital interest that we have a double source of great regret over Mr. McDowell's inability to be here personally to meet us and discuss the subject. Mr. McDowell's speeches would be more interesting, possibly, than a set paper, because of his vast experience. Now, I move you that a telegram be sent to Mr. McDowell voicing the sentiment of this meeting regarding this matter and expressing our regret at his absence and thanking him for his paper.

Mr. Sweetman—I had practically the same thing in mind. I intended to move that the Association officially appoint a committee for the purpose of looking after the conservation of natural gas, that the scope of such committee not be confined to locality, but that the subject be taken up with the different State departments, and with the National government as well, in connection with the agitation for the conservation of natural resources; and that a copy of this paper be sent to the proper officers of the different States where natural gas is produced. [Seconded by Mr. Strickler.]

The President—The prior motion of Mr. Welch is before you.

Mr. Welch—As to this committee, I merely presented that as an idea for the Association.

The President—You don't want that to go before the house as a motion?

Mr. Welch—I don't care whether it takes the shape of a motion or not, but I want some action sooner or later. The motion I made was that a telegram be sent to Mr. McDowell. [Seconded by the Secretary.]

The last named motion was put and unanimously carried. Thereupon, after discussion by Messrs. Sweetman, Welch, Garard, Stone, Hammon, Holmes, Mitchell, Barnes, Miller and others, the motion of Mr. Sweetman was amended to read that the President, in vacation, appoint a Conservation Committee, to consist of not less than five members, and that the expenses of such committee, for printing, postage, stationery and minor incidental expenses be paid out of the funds of this Association. [The motion, as so amended, was seconded, put and unanimously carried.]

The President—We have with us this morning Prof. Charles N. Gould, Director of the Geological Survey of this State, who has consented to address us on the subject of

THE FUTURE OF NATURAL GAS IN OKLAHOMA.

[The lecture by Prof. Gould, which is now being revised by him, will be printed immediately on its return to us.]

At the conclusion of the reading of the paper, which was interspersed with interesting comments and pertinent remarks, Prof. Gould was greeted with prolonged applause.

On motion of Mr. Sweetman, and amended by Mr. Hammon, a vote of thanks was tendered to Prof. Gould, and he was also declared elected to Honorary Membership in the Association. The result and action having been announced by the President, Prof. Gould returned his sincere thanks for the honor conferred and assured the members that the Oklahoma Geological Survey stood ready to render it service in the future as in the past. [Applause.]

The President—The next business is the report on the Committee on Next Place of Meeting. Mr. Holbrook, I believe, is Chairman of that committee.

Mr. D. O. Holbrook, then handed in the following

REPORT FROM COMMITTEE ON NEXT PLACE OF MEETING.

Gentlemen: Your Committee on Next Place of Meeting beg to report as follows:

New Orleans, St. Louis, Niagara Falls and Pittsburgh, have extended invitations for us to be their guests with the meeting of 1911.

New Orleans offers many novelties in the form of entertainment, and assures us a hearty welcome and generous hospitality.

St. Louis assures us of the hearty support of all the commercial bodies, and an opportunity to visit the most prosperous and thriving city of the United States.

Niagara Falls offers unsurpassed hotel facilities, great natural scenery and many sights that can be seen only there.

Pittsburgh offers everything that all the others do, and we have the personal assurance of many of the leading men of the city that they will use every effort to surpass the record of all previous conventions.

The Committee recommends that the convention of the Natural Gas Association of America be held in Pittsburgh, Pa., on the dates specified in the by-laws.

DAVID O. HOLBROOK, A. B. MACBETH, } Committee.

On motion of the Secretary the report was ordered received and its suggestions ratified.

Vice-President Garard assumed the Chair, and Mr. L. S. Bigelow, as Chairman of the Committee, read the following

REPORT FROM COMMITTEE ON PRESIDENT'S ADDRESS.

First.—In admonishing the managers and superintendents of gas companies to more carefully educate the employees of their companies to a better appreciation of the dignity of their calling, and the necessity for loyalty to their employers, in their constant touch with the public, the President dwelt upon a very important and essential matter, and your Committee would urge careful consideration of this recommendation.

Second.—In pointing out the inevitable increase in the price of natural gas to the consumer, the consequent necessity for more economical and efficient appliances for the producing of light, heat and power became at once apparent. And here, again, there should be appreciative attention given to a warning note that, spoken in advance, should awaken the manufacturers to the necessity of taking active measures to produce, without delay, the best that their ingenuity can devise. The automobile engine of but a short while since, as compared with the automobile engine of to-day, stands, for instance, as an example of development based upon demand. Let us see that this degree of improvement and development in our gas appliances is attained, since the demand is here with us. At the same time your Committee wishes to express appreciation of the immense strides made by the manufacturers along these very lines, and as well to bespeak for the manufacturers appreciative co-operation upon the part of the gas men.

Third.—In touching upon the lighting side of our industry, the President placed emphasis upon the gaining of ground by electricity, at the same time directing attention to the available weapon in our hands of gas, inexpensive to the consumer, and of the modern devices for the convenient lighting of gas.

Your Committee would urge the necessity for a careful consideration of this feature, and the sore need in this field for the study of illumination or proper distribution of gas light. To this feature, in the artificial gas field, much thought and study are being given, and we would direct attention to the special designs of chandeliers and fixtures made by several of the chandelier concerns that place gas as a means of ornamental illumination in the forefront.

In closing our report, we desire to compliment the President upon his practical, comprehensive and timely address, and urge upon our members present and absent an equal degree of careful consideration of the excellent suggestions presented.

Respectfully submitted,

L. S. BIGELOW, S. S. ALLEN, JR., K. M. MITCHELL, } Committee.

On motion of Mr. M. M. Sweetman, duly seconded, the report of the Committee was adopted and placed on file.

The President resumed the Chair and announced that the next order of business was the election of officers, whereupon Mr. John F. Parker, of the Committee on Election of Officers, read the following report:

REPORT OF COMMITTEE ON NOMINATIONS.

Mr. President and Gentlemen—Your Committee begs leave to submit the following named gentlemen to serve this Association as its officers and directors for the coming year:

President.—John Mesmore Garard, Columbus, O.

Vice-President.—Alexander Barksdale Macbeth, Independence, Kas.

Secretary and Treasurer.—Thomas Clive Jones, Delaware, O.

Western Director.—Michael M. Sweetman, Kansas City, Mo.

Eastern Director.—William H. Hammon, Pittsburgh, Pa.

KERR M. MITCHELL, M. W. WALSH, JOHN F. PARKER, } Committee.

On motion of Mr. Mitchell [seconded] the report of the Committee was accepted, and the gentlemen named for the various positions were declared elected.

SOME RESPONSES.

Thereupon, at the request of the retiring President, President-elect Garard took the Chair, being greeted with tumultuous applause. When the latter was at an end President Garard said: I wish you all knew just how much I thank you and how much I appreciate it, for I cannot tell it to you; it is out of the question. The honor of being at the head of such a body of men as this is one of which any man might be proud. Gentlemen, again I thank you. [Applause.]

Secretary-Treasurer Jones, having been called upon, said: Gentlemen, I certainly appreciate the honor of being elected your Secretary and Treasurer; but as the efficient duties of the Secretary and Treasurer depend entirely upon the co-operation of the members, I again ask for that co-operation during next year that you so freely accorded me last year. [Applause.]

Mr. M. M. Sweetman, who was then called for, said: Mr. President and Gentlemen, I appreciate the honor of being elected a Director in what I think is the greatest Association of this country. [Applause.]

In response to numerous calls, Mr. W. H. Hammon said: Gentlemen, I hope mine will take a more substantial form when you come to Pittsburgh. [Applause.]

REMUNERATING THE SECRETARY-TREASURER.

Mr. Garard—I would like to offer a motion to the effect that the salary of our Secretary and Treasurer be increased. [Seconded by Mr. K. M. Mitchell.]

Mr. Garard—Just a moment; maybe you won't. While I don't mean to say that I am better able to judge, I was in a position to know more about the work performed by Mr. Jones than anyone else, because he annoyed me like thunder running after me about this thing and the other. I want to pay him enough so he can do that himself or else divide the salary with me; so I suggest, and I make it as a motion, that we make Mr. Jones' salary for the coming year $750 instead of $500. [Seconded and adopted.]

The Secretary I certainly greatly appreciate the compliment, and money too, of course, is something that everybody can use.

The President called for the

REPORT OF COMMITTEE ON FINAL RESOLUTIONS,

which was then presented by Mr. L. S. Bigelow.

Your Committee desires to report as follows:

First.—That the sincere thanks of this body be extended to His Honor, Mayor Henry M. Scales, and the Honorable Dennis T. Flynn. First, for the hearty welcome extended to this Association by His Honor, the Mayor, and for the Golden Key to this wall-less city that has received us with open arms; and to the former representative in Congress from the Territory (now State) of Oklahoma, for the data given the Association and other matter of exceptional interest also embraced in his address upon the second morning of our convention.

To the members of the Entertainment Committee, there should be expressed the warmest possible evidence of appreciation for their unremitting energy and their achievements in behalf of the Association and its members. Especial thanks should be rendered to Mr. M. W. Walsh, Chairman of this Committe, who has borne the heat and burden of this work.

Second.—To the Chamber of Commerce, of Oklahoma City, we recommend an expression of appreciation in view of the activity and aid manifested by that body in behalf of this Association.

Third.—To the Oklahoma Gas and Electric Company, to the Oklahoma Gas Company and connections, we urge an expression of appreciation commensurate with the liberality manifested by these

Companies in providing for our Association entertainment of a most royal nature.

Fourth.—We would direct attention to the debt of gratitude which this Association should express to the manufacturers whose presence with their exhibits has made possible a practical demonstration of the advances made in the art of the utilizing of gas.

Fifth.—We deem it a pleasure to recall to the memory of the Association the fact that Mr. M. W. Walsh and Mr. H. C. Nelson were the two members of this organization to bring to it an invitation to make Oklahoma City an abiding place for one of the Association gatherings, they having presented this invitation as far back as the Joplin meeting, seconded by an invitation from his Honor the Mayor.

Sixth.—To the proprietors of the Lee-Huckins Hotel, we would recommend an expression of appreciation for the courteous attention, the meeting facilities placed at our disposal, voicing our recognition of unabated care and thoughtfulness. Respectfully submitted,

L. S. Bigelow,
Alan Leamy,
C. W. Sears,
} Committee.

Mr. Bigelow—I would direct attention to the fact that the President is not mentioned in this report. There should be an especial and separate vote extended to the President for his able work during the past year instead of embracing it in a general report.

Mr. F. W. Stone moved the adoption of the report, with the suggestion that has been made for an amendment, or addition thereto. [Carried.]

Mr. Sweetman—In consonance with the suggestion voiced by Mr. Bigelow, I move that a special vote of thanks be tendered our retiring President for his official favors during the last year. [Seconded and adopted by rising vote.]

The business of the session having been completed, on motion, the fifth annual meeting of the Natural Gas Association of America was declared adjourned, *sine die.*

Special English Correspondence.

Communicated by Norton H. Humphrys.

Salisbury, England, June 10, 1910.

The Dirty Cooker.—Difficulties Incidental to Municipal Trading.

The importance of conciliating the consumer of gas by prompt attention to complaints has been preached in season and out of season, and nearly all gas companies now run a complete system for prompt attention to leakages, bad supplies and such like small troubles. But there are frequent murmurings amongst managers of gas works, to the effect that this free attention has developed serious evil, and that a very substantial proportion of the complaints received are due to causes not only one of the control of the suppliers, but more or less within the control of the customer. When the consumer knew that the act of calling in the services of an outside gasfitter would be followed by the presentment of a bill of a more or less indefinite character, he hesitated and frequently allowed important defects to go unchecked. But when the gas company cheerfully and promptly stop the escape or clear the corroded pipes without charge, some customers, instead of accepting the attention in a proper spirit, seem to develop an irritable fault finding frame of mind, and send down to the complaint office once a week or so on some excuse or another. Many of this sort of complaints are purposely couched in anything but courteous language, the impression being that as the company are obviously anxious to obtain business, a threat to discontinue gas in favor of something else will carry more weight. In the lighting season the difficulty is the dirty incandescent burner. The customer blames the quality of the gas when the real fault is that he has neglected to keep the burner properly cleaned and free from dust. And at this time of year, when the warmer temperature render the kitchen fire a nuisance instead of a necessity, and the gas cooker is looked to as a means of meeting the whole of the culinary requirements, the complaint office is besieged by applications that the cooker should be changed. I am referring to cookers let out on hire at a quarterly rental, which represents the terms on which over 90 per cent. of the total quantity in use in this country are supplied. Very few people will buy them even on installment terms. Some of these applications are genuine. Cookers will not last forever, and after a reasonable working life, say 7 to 14 years, according to the work done, they may with advantage to both parties concerned be repaired or renewed. But in some cases it is found that the cookers have only been in use a year or perhaps two. The fair users—this class of complaints usually comes from the housewife—are emphatic in their declarations that the cooker is quite worn out, or that it possesses some specific defect. And they would like "a *new* one like Mrs. —— has." But inquiry shows that the cooker has barely even been wiped out since the day it was hired, and that the whole of the trouble is due to the lack of ordinary cleanliness. The necessity for this is obvious and imperative with other forms of stoves, but the long suffering gas cooker will stand a tremendous amount of neglect. No fixed rule can be laid down for dealing with these cases. They can be reduced to a negligible minimum by the exercise of bad and good sense on the part of them who personally handle the affair and come into contact with the customers. Without offending a single customer, it is quite possible to make it known that while the gas company are prepared to deal with *bona fide* complaints, the terms on which the cookers are supplied do not have any margin for those of the other class. And it is the usual experience that the majority of these sort of complaints do not come from the slot meter department, but from what are called the better class of consumers, where the lady of the house does not personally know much about the cooker, but it is left to the tender mercies of a domestic servant. The majority of the slot users keep their cookers in a most creditable condition of cleanliness. In small houses where the mistress personally attends to the cooking, the advantages of the gas cooker in respect to economy, freedom from dirt, soot, etc., are most keenly appreciated.

When local authorities and municipalities undertake the supply of gas, or other ventures that are more or less of a trading character, certain difficulties arise that are not experienced in the case of private companies. The concern belongs to the ratepayers at large, and is expected to be conducted in such manner as not to encroach in any respect upon the domains of any individual tradesman in the district. While the city fathers are expected to run the show on the latest and most economical lines, in order to earn the fullest possible amount of profit to be devoted towards the relief of the rates, many municipal owners find themselves in the unfortunate position of being called upon to make bricks without straw. They have to earn the dividend on a large capital, the sinking fund and the relief for the rates above mentioned, and to do this they must adopt the same policy that is successfully applied by private companies, such as the letting of apparatus on hire, the supply of free fittings under slot meter agreements, and the maintenance of incandescent burners. Ironmongers, plumbers and gasfitters are yet to look upon these matters as direct competition with their trade, and in many towns the gas committee are seriously handicapped by the representative associations of these trades. It may safely be laid down that no suppliers of gas, whether private or municipal, undertake work of this character from a deliberate choice. They would naturally prefer that the consumer should buy his apparatus right away at the full list price, that he should place an order with them for a complete outfit, and that he should keep his incandescent burners in tip top order. Or if satisfactory arrangements were made by "the trade" in respect to these matters, they would not care to interfere. But the difficulty is that while "the trade" object to enterprise of this sort as being likely to diminish or put a stop to ordinary trade sales, they offer no other means of securing the business represented by the sale of gas. Ninety per cent. of the people who are using gas apparatus to-day would not be doing so if they had been left to provide the same at their own cost. In most cases where "the trade" think it necessary to take action, a record of the actual business done, say during the previous 10 years, would show that the loss to them was insignificant. If things were otherwise, and a booming trade was being done in gas appliances, the manufacturers would be satisfied to let well alone.

Then another difficulty is the price charged to slot users. In every town there are self-appointed representatives of the working classes, who claim to look after the interest of labor, and who, incidentally, manage to do very well for themselves in the process. The fact that the slot payments are ready cast, and that there are no bad debts, is obvious to the man in the street. The equally important facts that a slot meter costs 50 per cent. more than an ordinary, that every slot meter means a fixed and definite outlay of capital, that the increased cost of collection and bookkeeping is very appreciable, owing to the frequent changes of tenancy, and that in addition there is the responsibility of keeping the whole installation in order, are not so obvious. The whole cost, inclusive of proper provision for depreciation, is not much less than 1 shilling per 1,000 cubic feet of gas sold. It is always easy to lose money, but not so easy to locate exactly which pocket has a hole in it. As a matter of fact the slot consumer

rarely pays his footing, because a loading of as much as a shilling on the ordinary price would arouse attention as being unfair. In places where the ordinary price is already high, a heavy loading might be prohibitory. But it is no uncommon thing to find a contention advanced to the effect that the slot meter should be supplied on the same terms as an ordinary. Only the other day a member of an important Scottish corporation displayed his inability to properly grasp the subject by attaching a loading of only 5½d., and proposed that it should be referred back to the committee for inquiry. The majority of gas undertakings consider that on the whole a load of 6d. to 8d. per 1,000 cubic feet is a satisfactory way of meeting the case. The slot department is entitled to some consideration as an equivalent for cash discount, and some of the business is obtained without additional expense for mains, etc. The majority of the slot consumers use cookers, which has an important effect on the day and summer consumption. But after making every possible allowance it is difficult to show that a slot user can be supplied with meter, cooker and 2 lights free of expense, under a loading of less than 8d. per 1,000 cubic feet. The difficulty of dealing with the matter is not lessened by the fact that although in theory the slot users are supposed to be confined to the poorer classes of the community, in practice there is no such distinction. Many well to do people are glad to avail themselves of the conveniences incidental to the system. For offices, club rooms and various associations, it is largely adopted. And while the small consumer has his special claims, the large ones usually have something to say. The owners of factories, ironworks, etc., do not hesitate to urge that cheap gas is a necessity to enable them to compete with others at a distance and to hold their own. In all municipal undertakings, substantial discounts to large users, based on the quantity consumed, are the usual rule. There are also difficulties over the sale of coke. If a stock accumulates and the surplus is sold to someone outside the district, there is sure to be a complaint to the effect that customers who pay rates should have the first consideration.

The trouble is not confined to the sales, but also extends to the purchases. The directors of a gas company have a free hand in respect to the purchase of coals and other materials, and, of course, they exercise the usual tactics in order to get down to rock bottom prices. The present condition of the gas coal trade furnishes a case in point. At the beginning of the season there was a general determination to advance prices 1 shilling per ton on last year. Quotations sent out a month ago were probably on that basis. But the position is not sustained and many collieries are to-day willing to renew on last years' prices, while others are trying for a sixpence advance. A gas company that solicited tenders by advertisement, say a fortnight since, would therefore take care to get the same revised, or perhaps invite fresh ones. But the municipal gas committee are subject to fixed rules as to consideration and acceptance of tenders. They must all be sent in by a certain date, and there must be no communication whatever between the party tendering and members of the committee. One result of this cast iron rule was recently exemplified in an amusing way. A contractor had sent in his estimate and, of course, did not know that it was on the list selected for acceptance. In the position of the market above indicated he was prepared to reduce 3d. rather than lose the contract, and sent in an intimation to that effect. But the committee found themselves bound to abide by the original quotation. If there are coal mines in the district, the committee are hampered by being expected to give the preference to the local supply, although it does not at all follow that the same is the best suited to their particular requirements. The same difficulty arises in respect to iron or to firebrick.

The best remedy for these troubles is for municipal authorities to confine their operations to their own particular and legitimate sphere, and to leave trading matters to be exploited by private enterprise, without which there can be no backbone to any township or district. It should be the object of the town council to stimulate and encourage private enterprise rather than to compete with it.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

961,435. Time Controlled Gas Lighting Service. H. W. Gates, Durham, N. C., assignor of 49 1/100 to F. Lambe, same place.

961,504. Globe or Shade for Gas Lamps. T. J. Little, Jr., Woodbury, N. J., assignor to Welsbach Light Company, Gloucester City, N. J.

961,512. Portable Reel Gas Oven. G. B. Meek, New York City.

961,745. Gas Supply System. H. D. Donnell, Berkeley, Cal., assignor to the Safety Car Heating and Lighting Co., New York City.

Items of Interest
FROM VARIOUS LOCALITIES.

NEGOTIATIONS between Mr. Glenn M. Averill, controlling owner of the Cedar Rapids (Ia.) Gas Light Company, and Messrs. Frank T. Hulswit and Richard Schaddelee, respectively President and General Manager of the Childs-Hulswit Company, have resulted in the purchase by the latter of the named property. Actual control thereof will be taken the 1st of August by the purchasers. Mr. Averill will retain a substantial financial interest in the property and will, for the present at least, remain in active charge as Business Manager. In the meantime, Mr. Thomas D. Miller, who is about as well known to the gas fraternity as any other member that could be named, has applied to the Council of Cedar Rapids for a franchise to operate a gas plant in that city, the real inwardness of which application will likely transpire later. Our idea respecting it is that, should it become operative, it will not be found to interfere greatly with the plans of the Child-Hulswit Corporation.

THE franchise referred to above is, as to its ordinance features, one of standard form, giving the applicants the right to build a plant, install and maintain gas mains and service pipes for the distribution of gas, and provides strict regulation for the opening and restoration of streets, crossings and sidewalks, etc. Further provisions are: That the price of gas shall not exceed the rate now or hereafter established by the city ordinances, from time to time; that the Company shall run service pipes, free of charge, 50 feet inside of the property line; for the appointment of a gas inspector, to be named by the city, whose salary will be paid by the Gas Company, and that such inspector shall be a technical graduate of an Iowa educational institution, whose duties shall be the daily inspection of the quality of the gas furnished by the Company, both as to the calorific value and candle power; also, the inspection of all gas meters. For the enforced extension of gas mains into new territory, and for the removal and repair of old mains on streets about to be paved or repaved, and for the installation of mains and service pipes in advance of the work of repaving. Protection to the city against damages accruing for which the city might be held liable through any neglect on the part of the Gas Company. That the Company shall maintain an adequate plant and system of mains for supplying the city and inhabitants with all the gas they may require. That the expense of the special election will be paid by the applicant for the franchise.

THE annual meeting of the Denver (Col.) Gas Company, which was to have been held the 14th inst., was postponed to the 28th.

THE Gas Light and Power Producing Company, Cleveland, O., has been incorporated by Messrs. M. Miller, N. Varnes, H. L. Parmenter, E. L. Benning and M. G. Davies. It is capitalized in $10,000.

AT the annual meeting of the Prescott (Wash.) Gas Company the following officers were elected: Directors, C. H. O'Neill, R. B. Smith, H. D. Fender, N. McSherry and T. R. Greenwell; President and Manager, C. H. O'Neill; Secretary and Treasurer, R. B. Smith.

AN agreement was reached between the residents of the upper level of Westmount and the Montreal Light, Heat and Power Company, whereby the former, when the latter's mains go into tis district, asserts that an equal selling price shall be maintained for gas in both.

AT last the gas plant which has been supplying gas to the House of Correction, Holmesburg, Pa., will be shut down, and the supply will be taken up by the U. G. I. Company from its Philadelphia main works. This means, too, that the general supply of Holmesburg and Tacony will be carried on by the U. G. I. Company.

"B. B. S.," writing from Salt Lake City, Utah, says: "Recently, before District Court Judge T. D. Lewis and a jury, the case of the Utah Foundry Company *versus* The Utah Gas and Coke Company was tried. The former sued the latter for the sum of $291.36, for materials furnished, whereupon the defendant set up a counterclaim for $291.36 on account of gas furnished complainant. The jury found that both statements of account were correct. So the complainant handed defendant a check for $8.64 in settlement.

THE Childs-Hulswit Company, which has for some time owned a controlling interest in the La Porte (Ind.) Gas Light Company, has acquired the La Porte electric lighting concern from Messrs. Jno. H. Harding and A. P. Andrew.

A RESOLUTION providing for the installation of a municipal gas plant has been adopted by the Borough Council of Audubon, N. J. No date was set for a special election to decide the question of a bond issue on such account, but a special meeting was called for last Saturday, when such action was to have been taken. Heretofore the street lighting had been done by electricity, but the Borough authorities have declared they will not sign again on like account with the present contractors.

A CORRESPONDENT in Springfield, Mass., writing under date of the 18th inst., incloses the following information respecting the determination recently reached by the authorities of Westfield, Mass.: "Another municipal improvement that is to be carried out this serson is the enlargement of the gas works at the municipal lighting plant. Only a short time ago the town expended about $25,000 in erecting a new gasholder, and now comes the need of materially enlarging the gas manufacturing facilities. The present manufacturing capacity of the gas plant is about 75,000 cubic feet of gas a day, and in the winter season a day's run will often exceed that amount. The storage capacity of the two holders, of course, helps out at such a time. The present plan is to increase the manufacturing capacity from 75,000 feet to 125,000 cubic feet. At the town meeting in March, $15,000 was authorized to carry on this work, and plans are now under way to make a beginning on the contracts. The building is to be enlarged materially, and probably about a third of the money will be expended in such an addition. There is talk of confining the bidding for the new building to Westfield contractors. The rest of the appropriation will be used in buying and installing new benches and new gas manufacturing machinery. The use of gas has increased wonderfully since the town took over the plants in June, 1899. At that time there were only about 570 gas consumers, while at the present time the number is between 1,700 and 1,800, an increase in 11 years of considerably more than 1,000. The output of gas last year was more than 30,0 0,000 feet, or about double what it was when the town took the business."

THE franchise granted the Columbus (Ind.) Gas Company by the County Commissioners has been amended so that it now covers a period of 23 years. Under it the Company will also extend its main system to and through the streets of the outlying settlement of East Columbus.

THE Board of City Trustees, of Willows, Glenn county, Cal., has granted the application of Mr. H D. DeGrau, for a franchise to build, operate and maintain a gas plant, and to lay gas mains and pipes in the streets and alleys of the named place. The franchise will be advertised at once and construction work will be commenced prior to September 1st.

PRESS advises dated New York, the 20th inst., state that the Pacific Power and Light Company has been incorporated under the laws of Maine, with a capitalization of $7,500,000, divided into $1,500,000 7 per cent. cumulative preferred and $6.000,000 common stock; and it is a subsidiary Company of the American Power and Light Company, and has taken over the following properties: Gas properties in Walla Walla and North Yakima, Wash; Lewiston, Idaho; and Astoria and Pendleton, Ore.; also, the electric properties in Astoria, Walla Walla, Pendleton and Athena; also, the electric trolley situation in Astoria and in Walla Walla, and the interurban line running from Walla Walla to Milton; the Strahorn properties, consisting of electric light, power and water systems in North Yakima and along the valleys of the Columbia and Yakima rivers. The Pacific Power and Light Company is controlled through ownership of its common stock by the American Power and Light Company, which in turn is controlled by interests associated with the Electric Bond and Shore Company. Additional subsidiary companies controlled by the American Power and Light Company, through ownership of their entire common stocks, are as follows: Kansas Gas and Electric Company, of Wichita and Pittsburgh, Kas., and the Portland Gas and Coke Company, Portland, Ore.

"B. W.," writing from Springfield, Mass., under date of last Monday, incloses the following: "The Trustees of the Massachusetts Gas Companies have declared dividends on the common stock for the ensuing year at the rate of 4 per cent., as compared with 3 per cent. now being paid. Payments will be made quarterly hereafter. The combined net earnings of the subsidiary companies available for dividends for the 11 months to May 31 amounted to $2,041,384 as compared with $1,731,166 during the same period a year ago. All the subsidiaries, with the exception of the East Boston Gas Company, increased their earnings over the figures of a year ago. All the subsidiaries, with the exception of Federal Coal and Coke, are paying dividends. That Company is still in the development stage, but there is no doubt that it will add materially to the earnings within a comparatively short time. The business and the profits of Massachusetts Gas are increasing steadily, and the 4 per cent. dividend rate on the common stock will be maintained indefinitely. The Trustees postponed the increase until they were sure that it could be maintained."

MR. CHARLES W. HOPKINS, for 36 years in the accounting division of the Providence (R. I.) Gas Company, died at the residence of his son-in-law, Dr. George S. Mathews, Providence, the afternoon of the 14th inst. Deceased, who was in his 71st year, having been born in Exeter, N. H., August 8, 1831. In 1874 (meanwhile he had engaged in business on his own account at several ventures, political situation, etc.) he joined the clerical staff of the Providence Gas Company, successively going on from clerk to bookkeeper to cashier and paymaster. In private life his particular study was the geneology of Rhode Island families, in respect of which studies he was famed throughout New England.

MISTER MARKS has another job. He has been selected by the City Council of Cleveland, O., to make an appraisal for the city of the artificial gas plants within its limits, which are and have for some time been under the control of the East Ohio Gas Company, which controls the supply of natural gas in the named city. He cut the rate for such service in two, having accepted a retainer of $50 per day and expenses. He never was a gas manufacturer, never has been engaged in gas works construction and knows absolutely nothing of gas works' management. He is an accountant pure and simple, especially the latter. Much of his testimony in the New York rate case was of the kind that caused smiles to move the facial features of every accredited gas engineer who listened to it. This goes particularly in reference to the testimony on pressure regulations, which part of the original findings was simply blotted out when it was examined by the higher courts. No accredited gas man would engage the services of Mister Marks in so far as gas manufacture or gas distribution is concerned. Much of his living in the last few years has been obtained in giving testimony (which in no sense may be dignified by the title of expert) seeking to belittle the practices of some of the most eminent gas engineers of current time.

ON the 1st prox., under the ratified agreement, the gas rate in Haverhill, Mass., will be 90 cents per 1,000 cubic feet for the ensuing twelvemonth.

THE proprietors of the Taunton (Mass.) Gas Light Company have petitioned the Board of Gas and Electric Light Commissioners, for the right to issue 1,200 shares of new stock to pay off a floating indebtedness in the shape of notes payable, etc.

"THE Rutland (Vt.) Railway and Light Company recently concluded a most successful week's series of demonstration lectures on lighting, heating and cooking by gas. The sessions were held in the Trinity Parish House, and a goodly portion of the expense of the demonstrations was borne by several food-stuffs companies, that maintained booths in the lecture hall. Amongst the exhibitors we note the names of the Fleishman Yeast Company, Vermont Maple Tree Sugar Company, the Singer Sewing Machine Company, and the Murdick-Perkins Company. The audiences were large and enthusiastic and included in the number of these were some of the town's upper tenners."—R. M.

THE heavy demands and the large increase in the sendout this year over last, from the plant of the Portage American Gas Company, at Portage City, Wis., obliged Manager Quackenbush to add to the Company's retort house capacity, and the contract for this construction was awarded to the Gas Bench Construction Company, of St. Louis, who recently completed the job to the satisfaction of all concerned.

The Market for Gas Securities.

The quotations for Consolidated gas during the week frequently ran counter to the general tenor of the market, the latter being rather "dumpish" as a rule, whereas, Consolidated went on to a higher closing averages each day. The opening to-day (Friday) was at 139½ to 139¾. It is amusing to note the different comments on the course of this stock as written from day to day by the financial wiseacres of the press. One of these had it that investors might as well know that the dividend rate on Consolidated will remain at 4 per cent. for at least 2 years; while another has it that the Company cannot much longer conceal its great heaping up of assets. Take your choice, gentlemen; meanwhile we add our thought, which is effective to the point that Consolidated at current rates is about 70 points under its real value.

Brooklyn Union is 142½ to 143½; Peoples gas, of Chicago, is 107½ to 107½; Laclede, is 102½ to 102½, and Massachusetts common is 82½ to 82½, these shares are now on a 4 per cent. basis, and the preferred is well over the 90 mark at 92½. The market is getting pretty clear of gas bonds.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

JUNE 27.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	139⅛	139¾
Central Union Gas Co.— 1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.— Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	3,500,000	100	155	165
New Amsterdam Gas Co.— 1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold 5's, 5 p. ct.	1,000,000	—	98½	100½
New York and East River— 1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union— 1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	142½	143½
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¼	107
Yonkers	299,650	500	130	—
Out-of Town Companies.				
Bay State	50,000,000	50	½	⅝
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	90	96
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	73	73½
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,683,750	100	90½	91
Preferred	3,028,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	103½	—
Mortgages, 6's	3,600,000		89	100
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	458,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100½
Detroit Gas Co., 5's	881,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	30	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104¾	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	103	103½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	200,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis	10,000,000	100	102¼	102½
Preferred	2,500,000	100	90	100
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	106	108¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	82¼	82¾
Preferred	25,000,000	100	91⅞	92
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	107¾	107½
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.— 1st Mtg. 5's	751,000	1,000	100	102

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Prevents Dusting and Absorption.

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CIVIC AND BUSINESS MEN'S ORGANIZATIONS PERFECTED.

DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, June 8, 1910.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable July 15th, 1910 to stockholders of record at the close of business, June 30, 1910. Checks will be mailed.

1847-5 LEWIS LILLIE, Treasurer.

Position Wanted

As Superintendent or Manager.

Young man, married, 1 years' experience all branches, desires situation as superintendent or manager. Would prefer plant where present results are not satisfactory. At present superintendent in town of 4,000.

1829-1 Address, "H. F. A. M.," care this Journal.

Position Wanted

By a Practical, All-Round Gas Man.

Sixteen years' experience in the manufacturing of both water and coal gas and construction of water gas machinery, seven years in charge of the manufacturing department of small and large plants. Best of references and best results assured. Address, "M.,"

1829-2 Care this Journal

Position Wanted

BY AN EXPERT ACCOUNTANT.

Eleven years' experience and knowledge of all gas accounting systems and the handling of office forces, at present employed. Can change on 30-day notice. Can furnish best of references. Address, "P. O.,"

1829-2 Care this Journal.

MANAGERIAL POSITION WANTED

By an experienced gas man with 10 years' experience. Can demonstrate ability as to operating, accounting and the promotion of sales. Best of references furnished.

Address, "C. H.,"

1829-2 Care this Journal.

Position Wanted

AS A GAS MAKER,

By a young married man, 27 years old. Now employed. Competent to run large plant. Ten years' practical experience. Address, "GENERATOR,"

1829-1 Care this Journal.

FOR SALE AT ATTRACTIVE PRICES.

Blowers.—2 Connersville 68 ft. d.c. to vertical engines; 2 McKenzie, belt; 2 positive gas Sturtevant No. 10, belt, with 2 horizontal engines; 3 Roots No. 6, 37 ft. d.c. to vertical engines.

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Engines.—1 Phœnix 11 in. by 14 in. horizontal; two 6 in. by 6 in. vertical; 1 Sturtevant, 4 in. by 6 in. vertical, no wheels. (See Blowers and Exhausters.)

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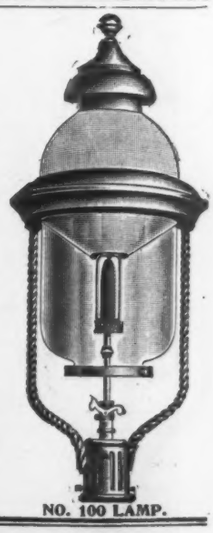

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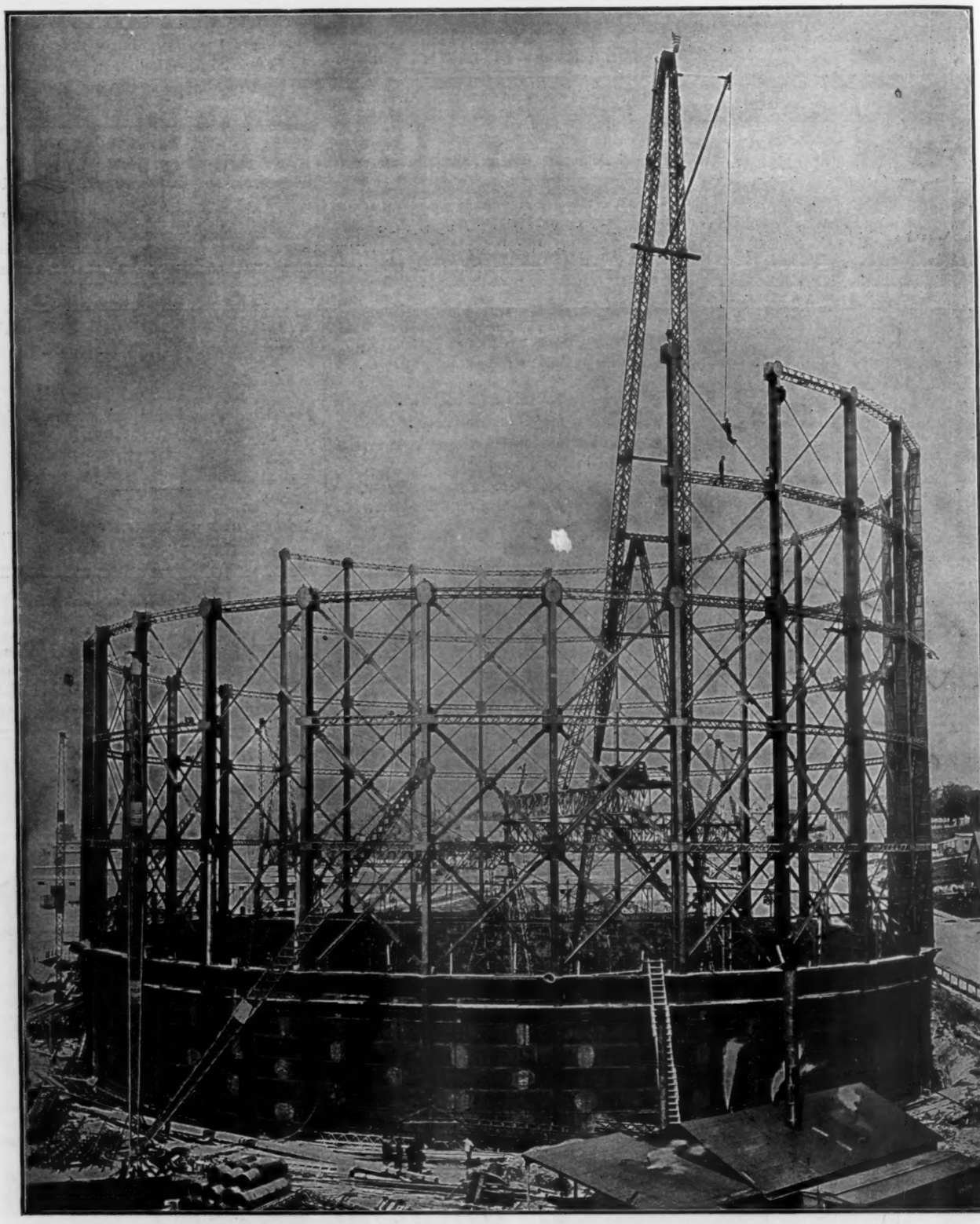

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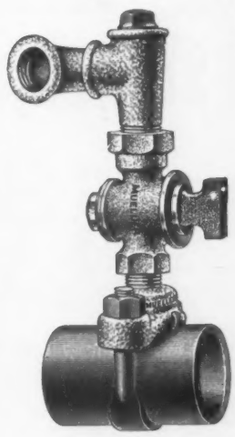

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MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October, 1910. New York City. Officers: President, Wm. H. Bradley, N. Y., City; Secretary, A. B. Beadle, 29 West 39th street, N. Y. City.

Canadian Gas Association.—Annual meeting, June, 1911. ———————. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1910. New York City. Officers: President, C. R. Huntley, Buffalo, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Guild of Gas Managers of New England.—Annual meeting, December. Young's Hotel Boston; monthly meeting, second Saturday. Officers: President, A. E. Quinn; Newport, R. I.; Secretary, Walter G. Africa, Manchester, N. H.

Illinois Gas Association.—Annual meeting, time, March, Chicago, Ills. Officers: President, A. S. Harrington, Chicago, Ill.; Secretary-Treasurer, C. B. Strohn, Elgin, Ill.

Illuminating Engineering Society.—Annual meeting, Baltimore, Md., Oct. 1911. Meetings of Sections, monthly. President, W. H. Gartley, Philadelphia, Pa.; Secretary, Preston S Millar, 29 W. 39th street, N. Y. City. Sections: New York: Secretary, Albert J. Marshall, 247 Fulton street. New England, Secretary, L. D. Gibbs 39 Boylston street, Boston, Mass. Philadelphia, Secretary, F. N. Morton, Broad and Arch streets Chicago, Secretary, T. R. Beebe, 157 Michigan avenue,

Indiana Gas Association.—Annual meeting, January 19, 1911, Fort Wayne, Ind. Officers: President, Carl H. Graf, Indianapolis; Vice-President, S. E. Mulholland; Secretary-Treasurer, Philmer Eves, Indianapolis Gas Company, Indianapolis, Ind.

Iowa District Gas Association.—Annual meeting, time, June, 1911, ———————. Officers: President, Austin Burt, Waterloo, Ia.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ———————. Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, September, 1910; ———————. Officers: President, B. O. Tippy, Grand Rapids, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April 13, 14 and 15, 1911; St. Louis, Mo. Officers: President, R. J. Irvine; Secretary and Treasurer, W. J. Cunningham, Springfield, Mo.

National Commercial Gas Association.—Annual meeting, December, 1911: Boston. Officers: President, E. N. Wrightington, Boston; Secretary, Louis Stotz, 36 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May ———————, 1911; Pittsburgh, Pa. Officers: President, John M. Garard, Secretary, T. C. Jones, Delaware, O. Editor Wrinkle Department, F. W. Stone, Ashtabula, O.

New England Gas Association.—Annual meeting, third Wednesday in February; Boston. Officers: President, W. H. Snow, Holyoke, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

Oklahoma Public Utilities Association.—Annual meeting, May 9, 10 and 11, 1911. Officers: President, E. C. Reynolds; Secretary, Galen Crow, Guthrie, Okla.

Pacific Coast Gas Association.—Annual meeting, Sept. 20, 21 and 22, 1910, Los Angeles, Cal. Officers: President, W. B. Cline, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 925 Franklin street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April, 1911, Reading, Pa. Officers: President, J. H. Keppelman, Reading, Pa.; Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, December, 1910; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 1123 Broadway, New York.

Southern Gas Association.—Annual meeting, Feb. 16, 1911, Montgomery, Ala Officers: President, H. W. Frund, Salisbury, N. C.; Secretary-Treasurer, Jas. Ferrier, Rome, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. May, 1911, ———————. Tex. Officers: President, W. B. Tuttle, San Antonio, Tex.; Secretary, H. B. Head, Stephensville, Tex.

Wisconsin Gas Association.—Annual meeting. May ———, 1911, Milwaukee, Wis. Officers: President, W. H. Winslow, Superior, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.

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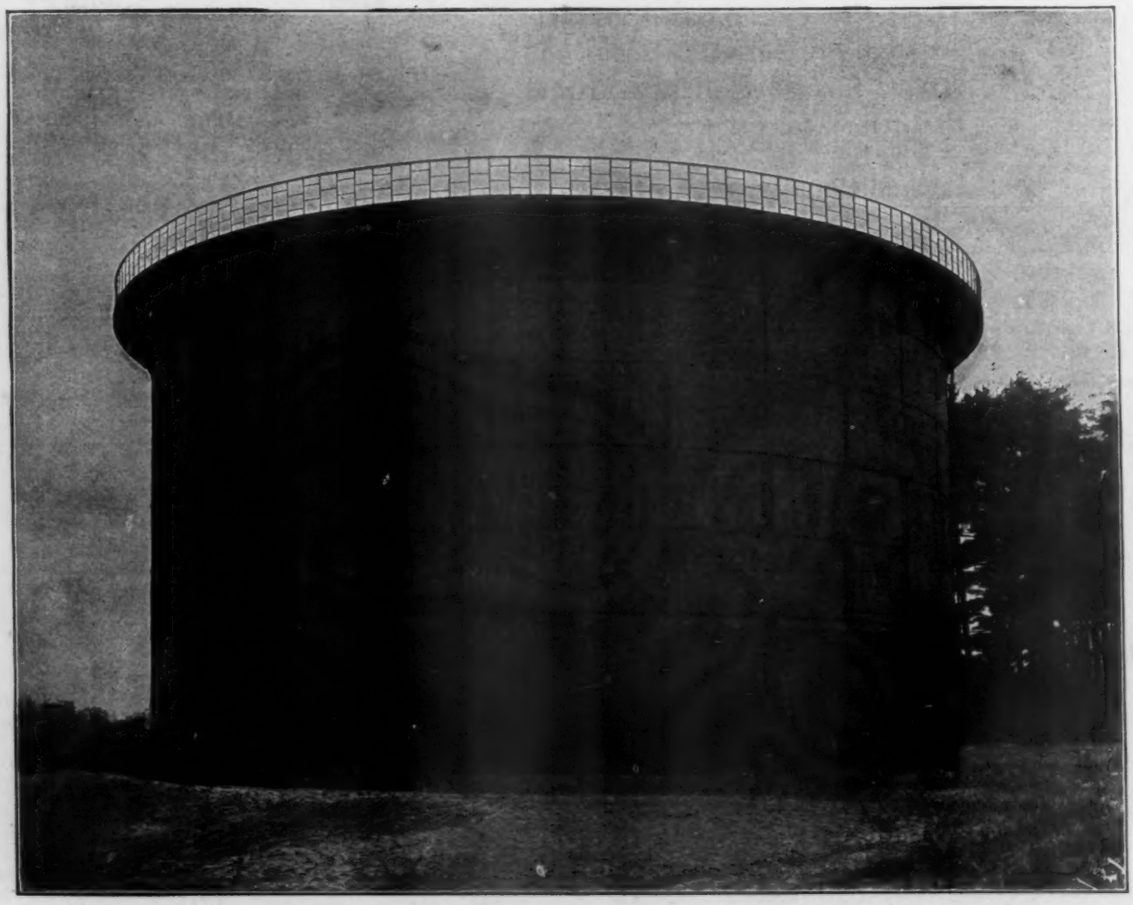

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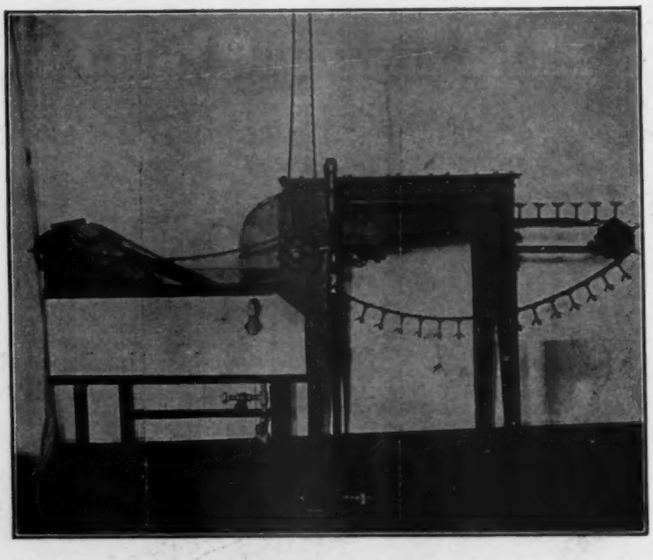

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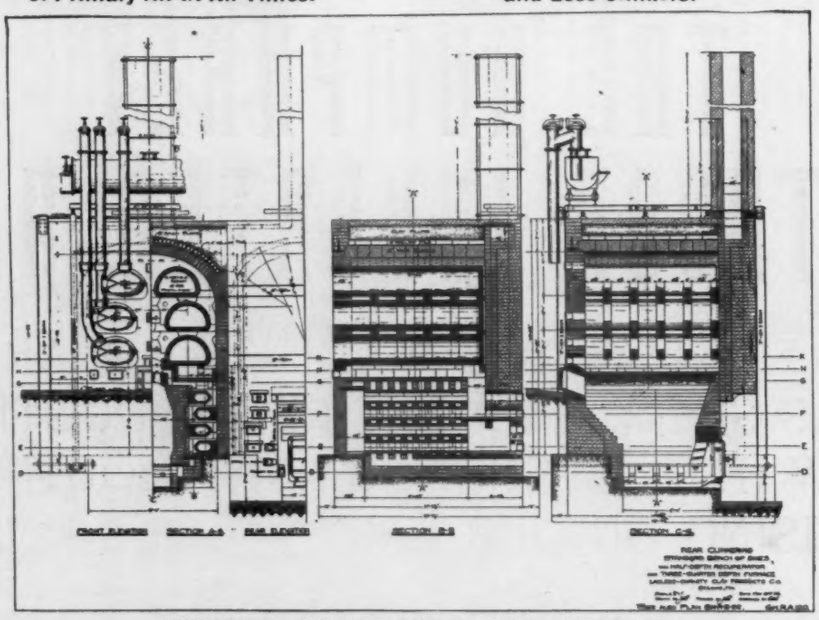

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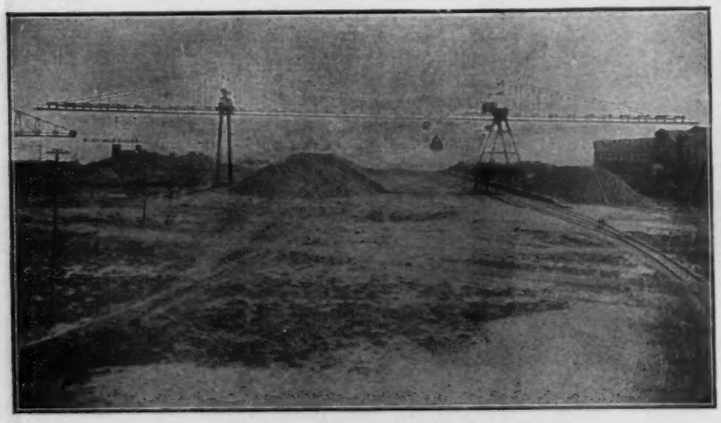

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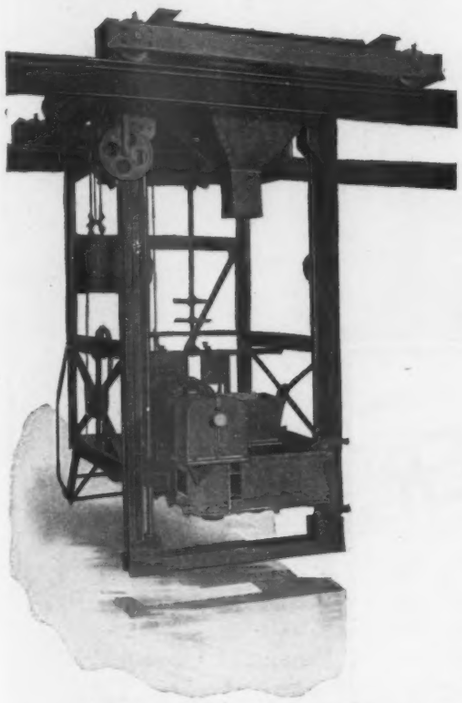

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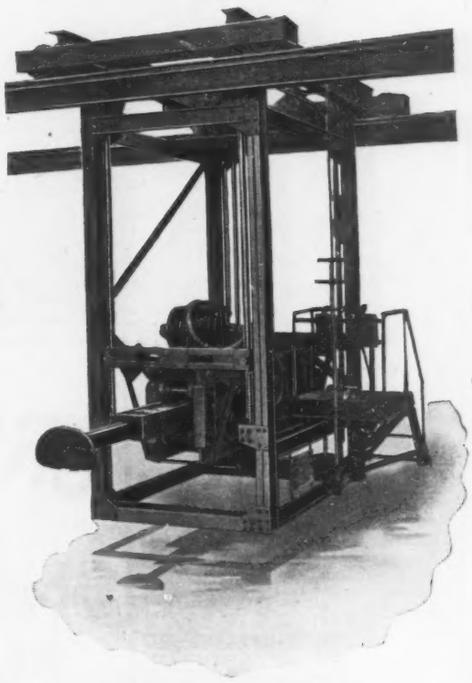

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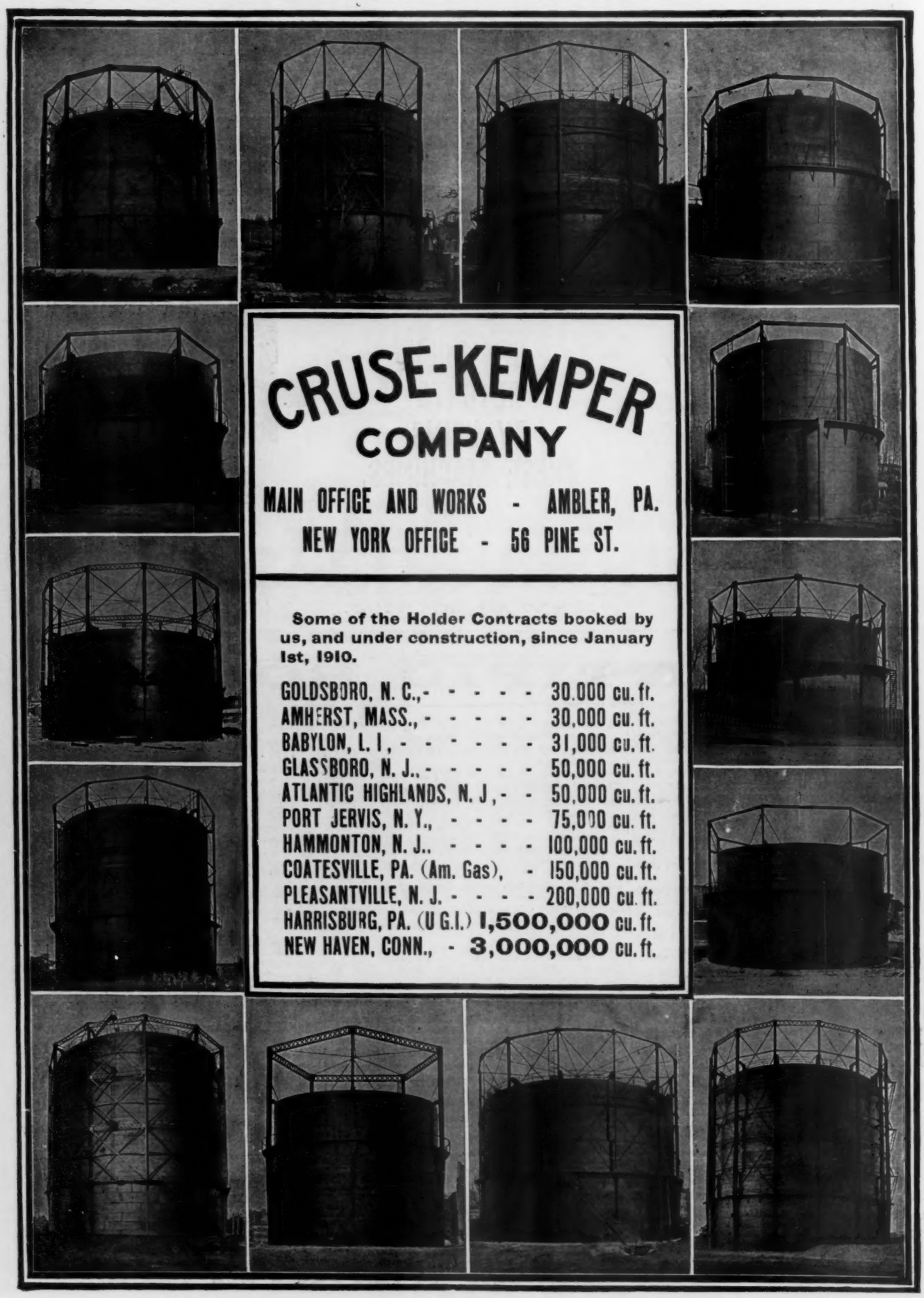

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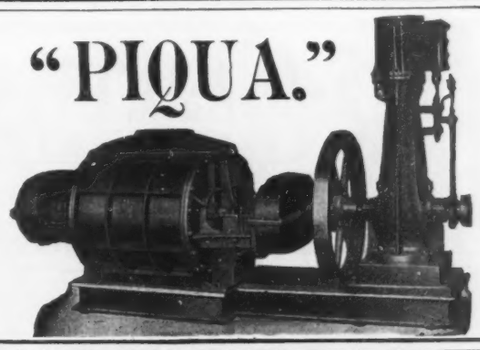

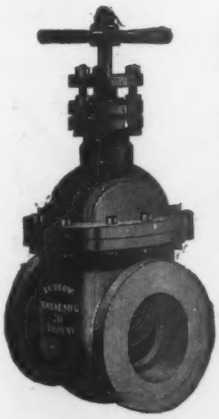

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						From Time Given.	
		P.M.				P.M.	A.M.
Fri.	1	8.00	2.00 A.M.	Fri.	1	7.27	3.07
Sat.	2	8.00	2.30	Sat.	2	7.22	3.07
Sun.	3	8.00	3.40	Sun.	3	7.22	3.07
Mon.	4	8.00	3.40	Mon.	4	7.22	3.07
Tue.	5	8.00	3.40	Tue	5	7.22	3 07
Wed.	6	8.00 N.M.	3.40	Wed.	6	7.22	3.07
Thu.	7	8.00	3.40	Thu.	7	7.22	3.07
Fri.	8	8.00	3.40	Fri.	8	7.22	3.07
Sat.	9	8.00	3.40	Sat.	9	7.17	3.12
Sun.	10	8.00	3.40	Sun.	10	7.17	3.12
Mon.	11	9.50	3.40	Mon.	11	7.17	3.12
Tue.	12	10.10	3.40	Tue.	12	7.17	3.12
Wed.	13	10.40 F.Q.	3.40	Wed.	13	7.17	3.12
Thu.	14	11.00	3.40	Thu.	14	7.17	3.12
Fri.	15	11.20	3.40	Fri.	15	7.17	3.12
Sat.	16	11.50	3.40	Sat.	16	7.12	3.17
		A.M.					
Sun.	17	12.20	3.50	Sun.	17	7.12	3.17
Mon.	18	1.00	3.50	Mon.	18	7.12	3.17
Tue.	19	1.40	3.50	Tue.	19	7.12	3.17
Wed.	20	No L.	No L.	Wed.	20	7.12	3.17
Thu.	21	No L. F.M.	No L.	Thu.	21	7.12	3.17
Fri.	22	No L.	No L.	Fri.	22	7 12	3.17
Sat.	23	7.50 P.M.	9.50 P.M.	Sat.	23	7.07	3.22
Sun.	24	7.50	10.20	Sun.	24	7.07	3.22
Mon.	25	7.50	10.40	Mon.	25	7.07	3.22
Tue.	26	7.50	11.10	Tue.	26	7.07	3.22
Wed.	27	7.50	11.40	Wed.	27	7.07	3.22
Thu.	28	7.50 L.Q.	12.00	Thu.	28	7.07	3.22
Fri.	29	7.50	12.30 A.M.	Fri.	29	7.07	3.22
Sat.	30	7.50	1.10	Sat.	30	7.02	3.27
Sun.	31	7.40	1.50	Sun.	31	7.02	3.27

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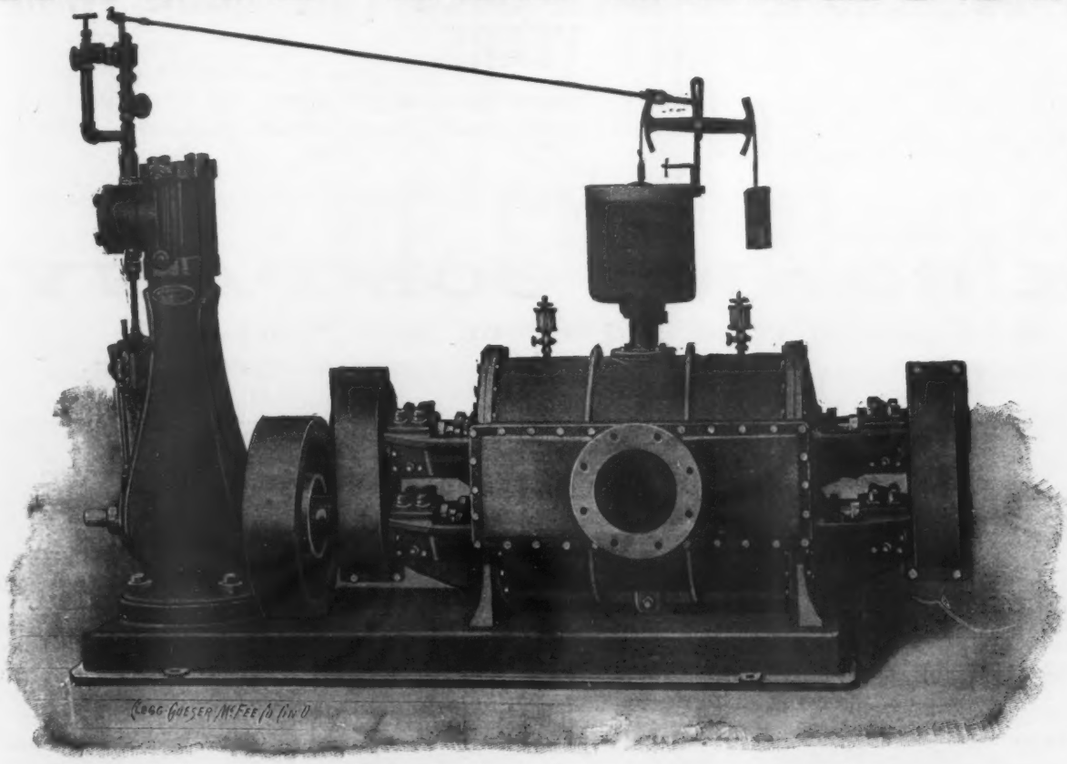

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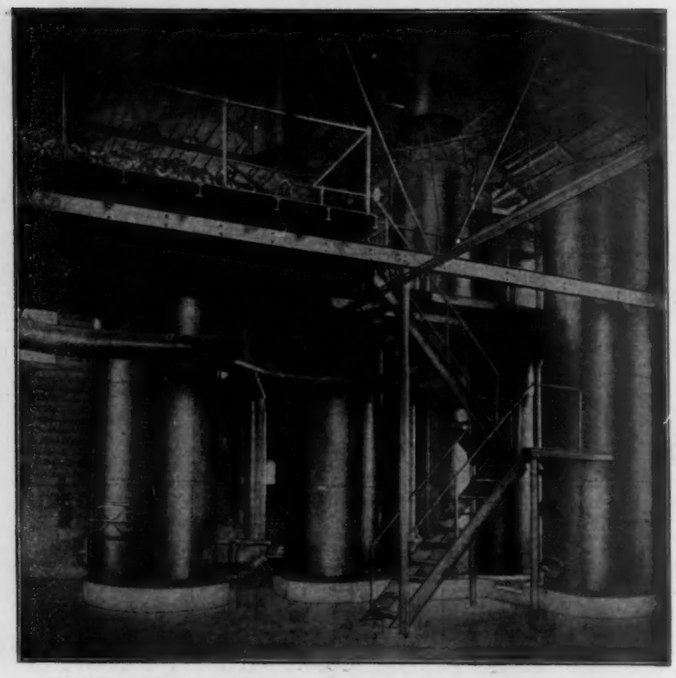

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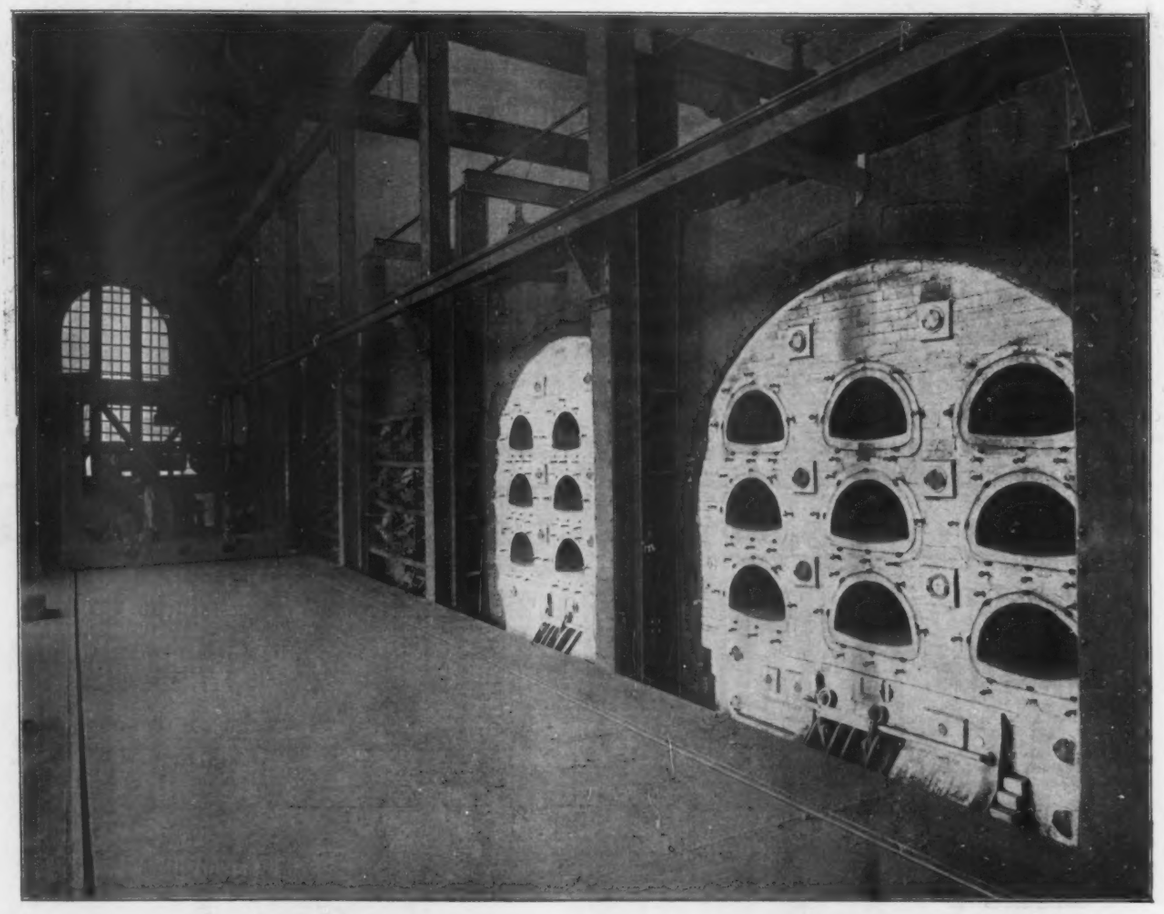

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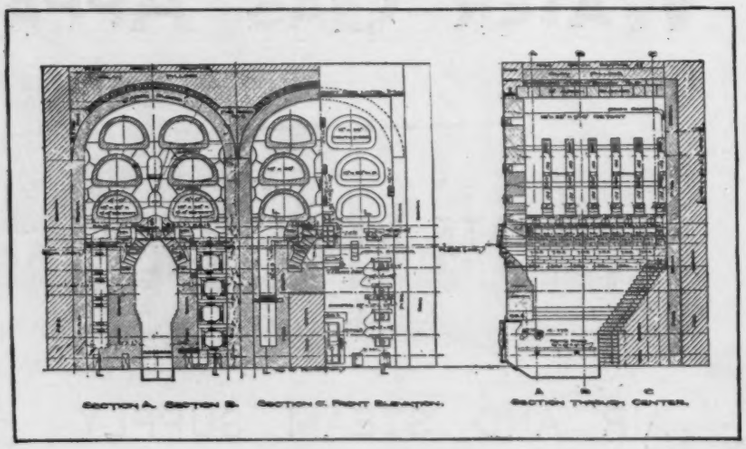

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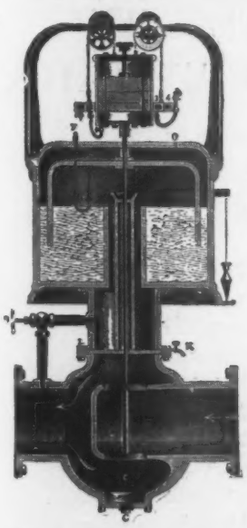

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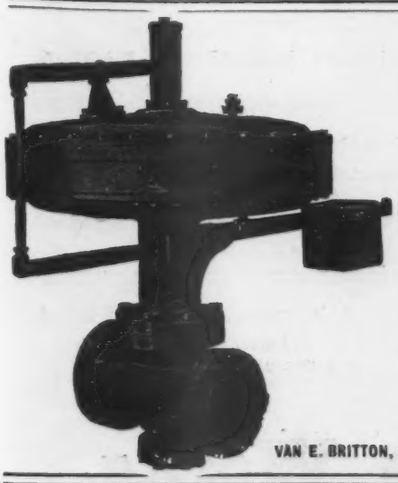

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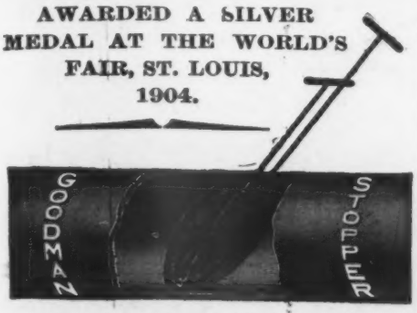

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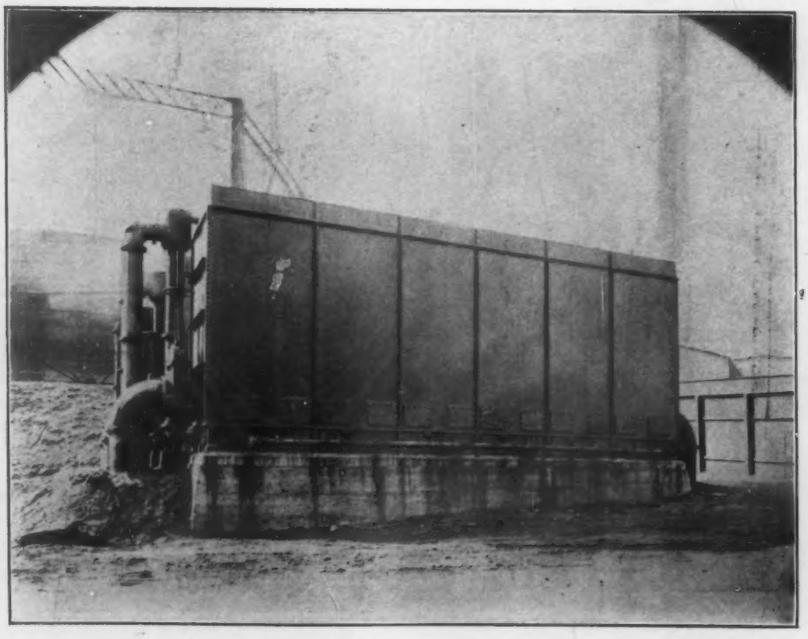

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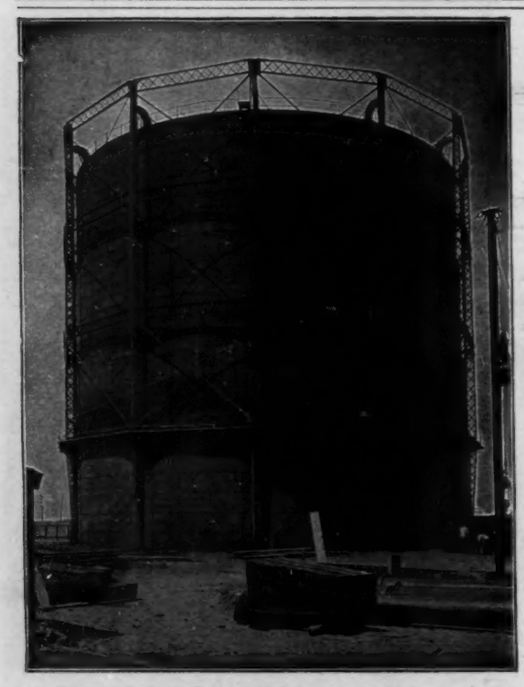

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